GasFields Commission Queensland

On New Ground

Lessons from development of the world's first export coal seam gas industry

June 2017

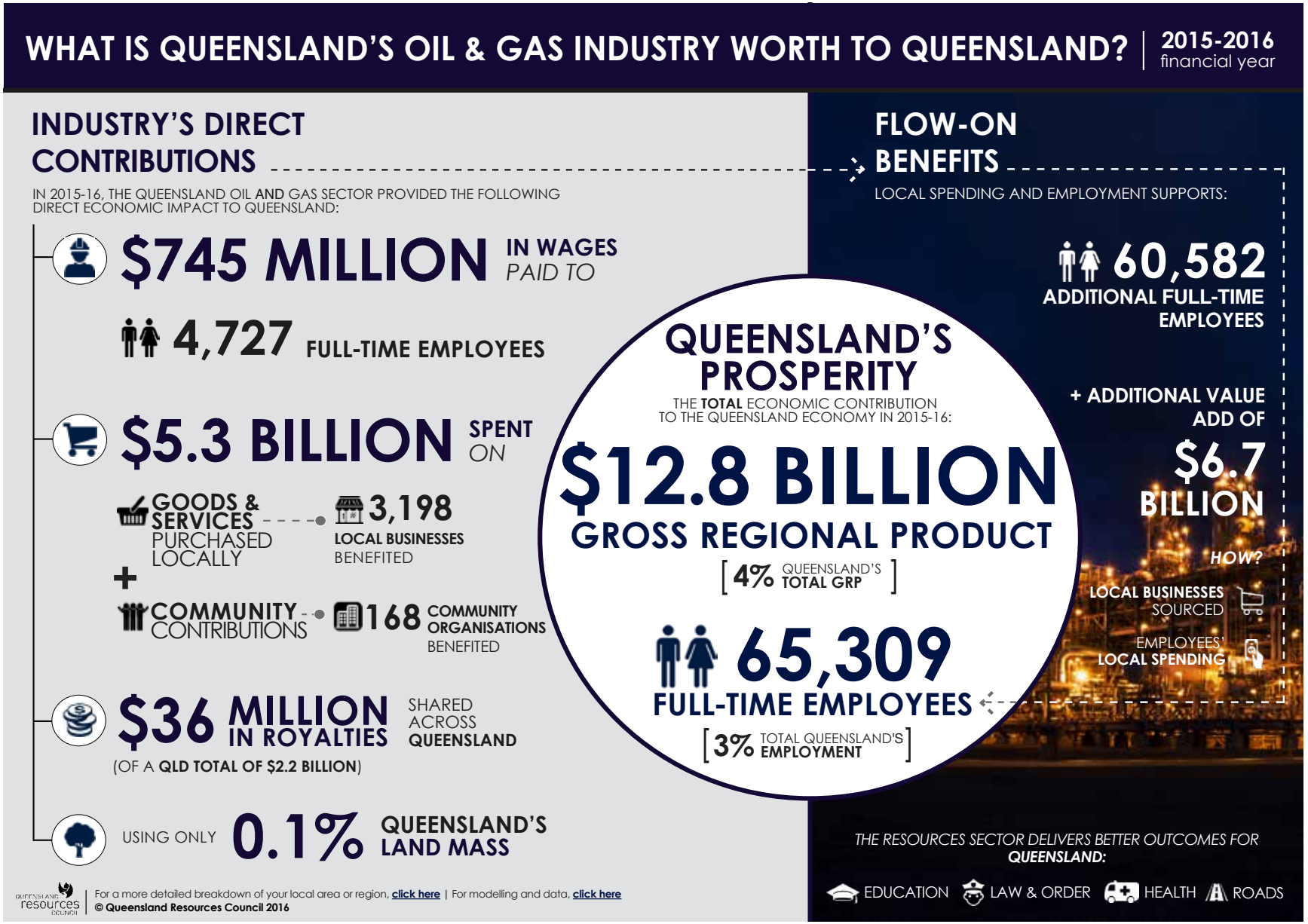
www.gasfieldscommissionqld.org.au

Gas Industry Snapshot 2010-2016: CSG Infrastructure

Tenement Area		**3.5% of Queensland (62,000km²)**	1.92% (33,195km²)—Authorities to Prospect (ATPs) 1.65% (28,601km²)—Petroleum Leases (PLs) Much of this area is used for agriculture which covers 88% of state land
CSG Wells		**8,919 spudded CSG wells** (as at 15 December 2016)	There are an additional 3,352 spudded conventional onshore oil and gas wells in Queensland that are not included in this figure
Pipelines		**1,490km combined length** of 3 main export pipelines	Connect Surat Basin gas fields to LNG processing and export terminals on Curtis Island, Gladstone
LNG Facilities		**LNG production trains** across 3 facilities	All six LNG trains were in commercial production as at October 2016
CSG Globe		**View CSG infrastructure** on the Coal Seam Gas Globe	View information and location of CSG wells, pipelines, facilities and groundwater bores. It's free online at: www.business.qld.gov.au

Gas Industry Snapshot 2010-2016: Landholders

Land Access Agreements		**5,107 agreements** (as at December 2015)	Known as **Conduct & Compensation Agreements** Up from 2,898 in June 2012
Number of Landholders		**2,188 landholders** estimated with CSG on property (as at May 2015)	Many landholders may have **multiple agreements*** *Because they own multiple parcels of land or various gas infrastructure
Compensation to Landholders		**$238 million** paid to landholders to June 2015	Ranging from small payments for minor works to over $1million for major gas field developments
Other Opportunities		**Beneficial use of CSG water** and other opportunities	Landholders have negotiated **in-kind outcomes*** *Such as new fencing, roads, grids, sale of gravel and water, and in some areas access to treated CSG water for cropping
Land Access Code		**Resource rights holders** entering private land have obligations to landholder	Preliminary activities—notice of entry Advanced activities—conduct & compensation agreement



Source: Queensland Resources Council (2016)

FOREWORD

Heeding the lessons learned during an unprecedented period in Queensland history, I am confident that in coming years the development of Queensland's onshore gas industry will take its place alongside some of Australia's iconic engineering and resource achievements.

In terms of dollars invested – A$60-70 billion – the transformation of coal seam gas (CSG) resources from opportunistic domestic supply to major export industry is without parallel anywhere in the world.

Part of a decade-long Australian minerals and energy boom, the "invention" of the export CSG industry brought with it new economic opportunities for many Queenslanders, but for others, it was a far from an easy time.

The growth of CSG production in the Surat and Bowen Basins following a state government policy shift in favour of gas-fired electricity generation sparked an exploration and development rush for which few were prepared.

By 2009, the domestic potential of CSG was overwhelmed by eight separate proposals to liquefy and export natural gas to the burgeoning energy markets of Asia. 3 of those proposals were confirmed in 2010.

By this time, rural landholders and communities – notably in the Surat Basin – were openly frustrated by what they saw as indifference to their concerns over the government-sanctioned pace of CSG industry growth.

In a fractious environment – exaggerated by a lack of scientific information about CSG production impacts and an emboldened protest movement – the Queensland Government brought together landholders, gas company representatives and government agencies under the banner of the Surat Basin CSG Engagement Group to get them talking and working together.

After 18 months and under a new state government, the GasFields Commission Queensland (GFCQ) was established in 2012, tasked with "managing and improving sustainable coexistence between rural landholders, regional communities and the onshore gas industry."

Fast forward to 2016, and the independent review of the Commission led by former Land Court of Queensland Member, Mr Robert Scott, noted (there is now) "broad tolerance in rural communities of the existence of CSG and agricultural businesses in the same landscape." However, he cautioned that "it is not without complaint or exception."

The Commission's learnings – in reality over 7 years from 2010-16 – are a valuable resource for any Australian jurisdiction examining or contemplating "…any future wave of CSG development or any development with similar characteristics; namely, a need to integrate industries to manage impacts and ensure complete communication and transparency."

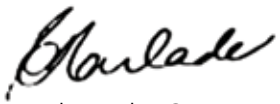
On New Ground is neither a history of the onshore gas industry in Queensland nor a critique of the parties or actions associated with its development and ongoing management.

It is a reporting of the Commission's experiences in its dealings with governments, onshore gas developers, rural landholders and communities who either by design or coincidence played integral roles in the most significant resource development (story in) Australia's recent history.

In endorsing this report, I gratefully acknowledge the work of the Commission's stakeholders and especially the contributions of our inaugural Chair John Cotter and his six Commissioners.

The expansion of onshore gas exploration and production in Queensland must continue to meet the gas supply contracts that underwrote the industry's extraordinary multi-billion dollar construction phase.

As a result there will also be a shift in the Commission's focus to providing continuing education and support for rural landholders – particularly in greenfield areas – and working with stakeholders to build respectful and balanced relationships with the clear goal of positive outcomes for all parties.



Ruth Wade, Commissioner
Brisbane, Queensland, June 2017.

POTTED CSG TIMELINE

Overview

Coal seam gas (CSG) is a naturally occurring methane gas found in most coal seams and is similar to conventional natural gas.

In Australia the commercial production of CSG commenced in 1996 in the Bowen Basin, Queensland. Since then production has increased rapidly, particularly during the first decade of the 21st century. CSG has now become an integral part of the gas industry in eastern Australia, particularly in Queensland.

A major driver for the growth in CSG was a decision in 2000 by the Queensland Government that required 13% of all power supplied to the state electricity grid to be generated by gas by 2005.

Geoscience Australia website: http://www.ga.gov.au/scientific-topics/energy/resources/petroleum-resources/coal-seam-gas

3 April 2007

"In 2000, when the (13% gas) scheme was announced, coal seam gas was supplying around 2 petajoules of gas a year, or around 2 percent of Queensland's gas requirements. Now, in 2007, coal seam gas will supply about half, or around 60 petajoules, of Queensland's gas."

Minister for Mines and Energy, Hon. Geoff Wilson (Media Statement)

18 March 2010

Queensland will host the first plant in Australia to convert coal seam gas to liquefied natural gas on a commercial scale under a new deal announced by Premier Anna Bligh today.

Premier Bligh welcomed the signing of a $100 million agreement that will see the construction of a multi-million dollar liquefied natural gas plant near Chinchilla to create fuel for trucks from coal seam gas.

Premier, Hon. Anna Bligh (Media Statement)

24 March 2010

Up to 8,500 Queensland jobs will be created and $60 billion in export activity from the state is set to begin after the signing of a landmark deal for the world's biggest liquefied natural gas contract based on coal seam gas, Premier Anna Bligh announced today.

Premier, Hon. Anna Bligh (Media Statement)

20 May 2010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ALL FIRED UP

Qld farmers fear coal seam gas growth

Picture: RODNEY GREEN

See p24

WIN A HEIFER p110

QCL 75th p25

WIN AN ISUZU UTE p105

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28 May 2010

A new Queensland gas industry is a step closer today with the State Government granting conditional approval to the $7.7 billion Santos/ PETRONAS Gladstone Liquefied Natural Gas (GLNG) project.

Premier, Hon. Anna Bligh (Media Statement)

25 June 2010

The State Government has today granted conditional approval to QGC Pty Ltd's multi-billion-dollar Queensland Curtis Liquefied Natural Gas project (QCLNG) near Gladstone.

Premier, Hon. Anna Bligh; Minister for Infrastructure and Planning, Hon. Stirling Hinchliffe (Media Statement)

9 November 2010

The State Government has given the green light to the proposed Australia Pacific Liquefied Natural Gas (APLNG) project which could create up to 6000 jobs during phase 1 and up to $35 billion of investment if fully implemented.

Premier, Hon. Anna Bligh; Minister for Infrastructure and Planning, Hon. Stirling Hinchliffe (Media Statement)

23 November 2010

Ms Bligh said a new LNG enforcement unit would act as a one-stop shop to respond to safety, land access and environmental concerns. The 36-member team would include environmental and groundwater experts, petroleum and gas safety specialists, and staff specialising in land access issues.

Premier, Hon. Anna Bligh (Media Statement)

28 July 2011

By June 2009, eight proposals for LNG plants in Queensland had been announced, most involving partnerships between Queensland companies with coal seam gas resources and international petroleum companies. If all eight proposals reach full capacity, it would represent a potential LNG market for the state of about 43 million tonnes per annum. By mid-June 2011, three of the eight proposals had received Federal Government approval, and LNG exports are expected to begin in 2015.

The development of Australia's coal seam gas resources (Michael Roarty), Australian Parliamentary Library

19 April 2012

The LNP Government today fulfilled another election commitment as Deputy Premier and Minister for State Development, Infrastructure and Planning Jeff Seeney announced he would establish the Gasfields Commission to restore Queensland's confidence in the CSG industry.

Deputy Premier, Hon. Jeff Seeney (Media Statement)

19 April 2012

Powers and Function - Gasfields Commission Act 2013

- Review the effectiveness of legislation and regulation
- Obtain and publish factual information
- Identify and advise on coexistence issues
- Convene parties for the purpose of resolving issues
- Promote scientific research to address knowledge gaps
- Make recommendations to government and industry

15 October 2012

Outgoing AgForce president Brent Finlay told Queensland Country Life there had been a significant decrease in the number of concerned landholders contacting the rural lobby group offices in recent months as the improving regulatory regime takes hold.

"There has also been a significant change by the gas companies in how they go about dealing with landholders," he said.

"I believe the companies want to now work with landowners rather than simply run over the top of them. Not so long ago there was a knock on the door and the gas industry representative was standing there and the drilling rig was already set up inside the front gate and ready to go.

"It was almost a legislation-free zone two years ago. There was no respect or acknowledgment of the landowner, they were just expected to get out of the way.

"But I believe there has recently been a significant maturing between the two industries."

CSG mistakes – we've made a few (Troy Rowling), Queensland Country Life

27 November 2012

"Since its establishment in April 2012, the Gasfields Commission has been doing some great work in the community, working towards better coexistence between industries and landholders.

"The coal seam gas to liquefied natural gas (CSG-LNG) industry will inject almost $60 billion into the Queensland economy.

"These projects are expected to create more than 18,000 jobs and leave a legacy of skilled workers for new mining and other projects in the future.

"There are currently more than 8,400 people working at LNG facilities on Curtis Island with more than 88 per cent of these workers being from Queensland.

"While this industry is pumping billions of dollars into the local economy and will generate significant royalty revenue, it must co-exist with the agricultural sector and work better with the rural landholders and regional communities that we depend on for food and fibre. It's essential that we strike the right balance between these two pillars of our economy."

Deputy Premier, Hon. Jeff Seeney (Media Statement)

6 January 2015

The departure yesterday afternoon of the first liquefied natural gas (LNG) tanker from Queensland's Gladstone Harbour marks the start of Australia's dramatic transition to being the world's largest supplier of this critically important energy source.

It also marks the completion of Queensland Curtis LNG – the first of three Queensland CSG-to-LNG export projects to be commissioned.

Australian Petroleum Production and Exploration Association (Media Statement)

July 2016

Figure 8: Queensland coal seam gas — 2P reserves

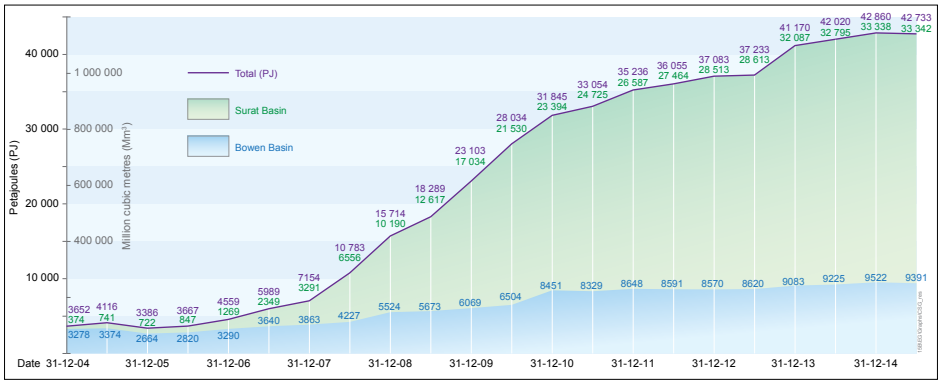
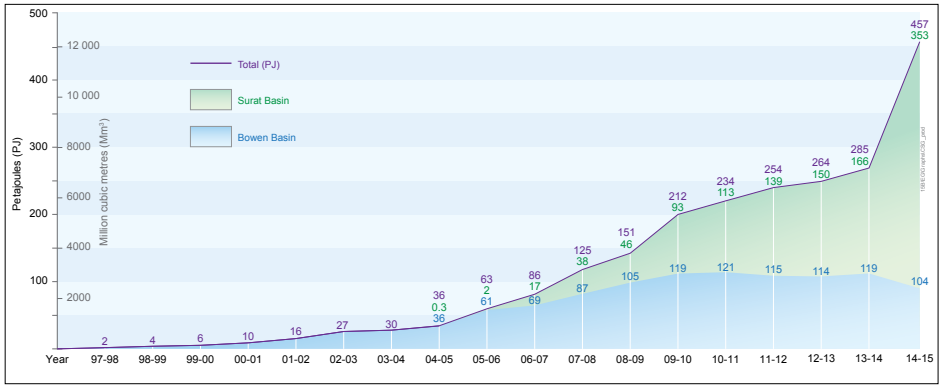


Figure 9: Queensland coal seam gas — production period 1997–2015



Queensland mining and petroleum industry overview, Department of Natural Resources and Mines: https://www.dnrm.qld.gov.au/__data/assets/pdf_file/0004/238072/queensland-mining-petroleum-overview.pdf

23 November 2016

"If you look at Toowoomba, the unemployment rate we have here is one of the lowest in the country and that's a direct result of not just the coal seam gas sector, but also the agricultural sector and the infrastructure sector that's really booming at the moment. And what it's done is given people the confidence to spend money, to build houses, to build shopping centres, to build motels and, in our case, gave us the confidence to build an airport. So it's been a fantastic thing and this is going to go on for another 20, 30, 40 years and we need to make sure that we embrace it and work together with these people to get the best out of it."

John Wagner, Chairman, Wagners (media interview)

EXECUTIVE SUMMARY

"…the learnings of the Commission are of such value that they need to be articulated and retained. That is not to say that every action in the past is to be applauded, but it is as useful to learn from failures as from successes. Third, those learnings and the information resource of the Commission provide an excellent foundation to move forward."

Mr Robert Scott – Independent Review of the Gasfields Commission Queensland and Associated Matters, July 2016.

The GasFields Commission Queensland (GFCQ) was established by the Queensland Government in 2012 as an independent statutory body to facilitate sustainable coexistence between landholders, regional communities and the onshore gas industry in Queensland.

However, its roots go back to the Surat Basin Coal Seam Gas (CSG) Engagement Group formed by the government of the day 18 months earlier.

Under inaugural chair Mr John Cotter, six Commissioners representing CSG communities, rural landholders and the CSG industry focused their efforts on:

- Community and business (Mr Shane Charles, CEO Toowoomba and Surat Basin Enterprise)
- Science and research (Professor Stephen Raine, soil scientist, University of Southern Queensland)
- Local government and infrastructure (Cr Ray Brown, Mayor of Western Downs Regional Council)
- Water and salt management (Mr Ian Hayllor, irrigator and Chair, Basin Sustainability Alliance)
- Land access (Mr Don Stiller, landholder and former Mayor of Taroom Shire Council)
- Gas industry development (Mr Rick Wilkinson, COO, Australian Petroleum Production and Exploration Association).

From the community unease in the Surat Basin that peaked in 2010 through to the first shipment of liquefied natural gas (LNG) from Gladstone in 2015, the Commissioners and staff were at the frontline of the CSG industry's journey to export fulfilment.

The Commission's work in smoothing out the journey through consultation and information sharing has been acknowledged widely but just as importantly – with decades of gas industry development ahead – there is confidence that the foundations have been laid for stronger, longer-lasting collaboration and partnership opportunities, particularly as a now maturing gas industry detaches from individual project timelines.

While Queensland's embrace of an adaptive environmental management approach to the world's first CSG to export LNG industry was viewed as appropriate in political and scientific circles, it fell short of public expectations – fuelled by a lack of independent information, genuine community concerns and alarmist predictions over the imposition of a new industry on land traditionally utilised for agricultural production.

The major learnings of the GasFields Commission Queensland from 2010-15 (expanded upon in the Conclusions section of this report) are:

1. **Land access is a business to business relationship:** Landholders enable resources to be developed on behalf of the community and there must be mutual knowledge of, and respect for, the businesses that are competing for access to and use of scarce resources such as productive land and water.

2. **There must be a robust and trustworthy regulatory framework:** Government must develop and promote a framework covering all aspects of new industry development including tenure requirements, project approvals, land access codes, environmental management including water, health, safety and social impacts.

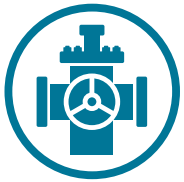
3. **The gas industry must understand all impacts on the community:** Industry must engage early with local government to help counteract its initial community impacts and build a stronger future. Local government is central to managing issues including dust, noise, roads, traffic, privacy, security, and new calls on community infrastructure such as town water supplies, waste and sewage facilities, health and emergency services.

4. **Trust facts not emotion (especially good science on geology and water):** While there is a wealth of scientific research and evidence supporting the ongoing but vigilant operation of the onshore gas industry, the public must be able to access this information. Openly and transparently sharing information through bulletins, fact sheets and technical papers is the key to building trust.

5. **Pursue effective communications and engagement:** One of the legacies of inadequate communications in the early development of the CSG industry was the breeding ground it created for fear and confusion. With this predicament likely to continue well into the future, the GasFields Commission has adopted a priority policy of stronger communication and education at all levels to demystify the gas industry and afford stakeholders the opportunity to make informed decisions.

6. **Leverage legacy opportunities:** The gas industry is no longer an "uninvited, short-term guest". Governments, rural landholders and communities must manage that reality accordingly as new technologies and knowledge extend the life of most Queensland onshore gas fields well into the future. Landholders need to consider carefully how they interact and interface with the gas industry with an eye to securing their long-term business objectives. Communities also have an opportunity to ensure that the gas industry becomes a positive and valuable member of their immediate circle, delivering both short and long-term benefits.

SNAPSHOT: QUEENSLAND'S ONSHORE GAS INDUSTRY



8,919 CSG wells and 3,352 conventional onshore oil and gas wells

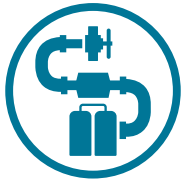
Estimated $238 million in compensation paid to landholders *(at June 2015)*

$247 million invested to date by gas companies in community infrastructure – water, sewerage, hospitals, community centres, airport upgrades

1,490 km combined length of 3 main export pipelines from Surat Basin to Gladstone

Farmers have negotiated direct benefits including sale of gravel and water, upgrading of roads, dams, and other farm infrastructure, and progressed property plans

Gas companies spent $10.6 billion in 2015 and $6.2 billion in 2016 with Queensland businesses



6 LNG production trains operating on Gladstone's Curtis Island

Majority of 70,000ML/yr of CSG water treated and being used for farming/agriculture purposes

Short and long-term job opportunities, potential off-farm income for landholders and employment pathways for young people in their communities

More than 5,100 Conduct and Compensation Agreements in place *(at Dec 2015)*

Regional road upgrades including Toowoomba Second Range Crossing

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INTRODUCTION

Authorisation and purpose

In March 2016, the Queensland Government announced an independent review of the GasFields Commission Queensland (GFCQ) by Mr Robert Scott, a retired Member of the Land Court of Queensland. Mr Scott's report was released by the Minister for State Development and Minister for Natural Resources and Mines on 1 December 2016 and included a range of measures aimed at clarifying the role of the Commission and improving its effectiveness.

Recommendation 1 from Mr Scott included that "the current membership of the GasFields Commission author a document setting out the learnings of the Commission in discharging its responsibilities; that paper being in a form suitable to inform others embarking upon a task similar to that which confronted the Commission."

Mr Scott added this "can be best addressed from the records and collective memory of the current membership of the Commission. It would provide a valuable springboard to assist in the management of any future wave of CSG development or any development with similar characteristics, namely a need to integrate industries to manage impacts and ensure complete communication and transparency. A speech by the Commission Chairman to the Northern Territory Cattlemen's Association annual conference provides a good start to implementing this recommendation." (Scott 2016, pp. 32-33).

Scope

This report summarises the learnings and insights from the work of the Commissioners and Commission staff, supported by commentaries from almost 80 face-to-face interviews undertaken in 2014-16. A wide range of stakeholders involved in the development of Queensland's onshore gas industry, including rural landholders (predominantly from the Surat Basin) and representatives of the coal seam gas industry, business, community, academia, and local and state governments, were interviewed with the objective of informing the future work of the Commission.

In order to provide further context around development of the industry and the challenges faced, references to relevant published and unpublished research material are also included.

This report will be of interest to:

- existing stakeholders (especially rural landholders)
- those involved in planning major projects *where there is potential for large numbers of private landholders to be impacted* – particularly within Queensland
- stakeholders in other jurisdictions considering the development of industries where there is the potential for competing ownership interests (e.g. above and below ground)

Limitations

As this report is a summary of individual views and collective experience, there is no universal remedy for issues raised by stakeholders, particularly rural landholders whose circumstances are unique, and range from rural lifestyle properties to diverse agricultural businesses and public land.

The presentation format of this report seeks to highlight:

- the background to each of the major issues identified by stakeholder groups
- the principal impacts and implications arising from each of these issues
- the key Commission learnings arising from the above

This is supported by background material including quotes from key stakeholders, statistical information, case studies, checklists and hyperlinks to further information.

Direct quotes from identified stakeholders have either appeared in the public domain or are reprinted with permission.

Onshore Gas in Queensland

While the Bowen Basin is regarded as the birthplace of commercial CSG production in Queensland, Roma in the Surat Basin has a much longer association with natural gas production, being the first town in Australia to install gas street lighting in 1906 following an explosive conclusion to the drilling of a water bore at Hospital Hill 6 years earlier.

Elsewhere in the Surat Basin, Moonie Oil started commercial production in 1962, piping its first crude produce to Brisbane the following year. By 1968 more than 30 conventional gas fields on the Roma shelf were supplying natural gas by pipeline to Brisbane.

Pre-2010: CSG's Unexpected Beginnings

When the opportunistic commercial production of natural gas from coal seams began at Moura in 1996, few would have envisaged the ensuing development of a world-class onshore gas industry in Queensland.

In 2000, the energy potential of the state's coal seam gas (CSG) resources were thrust into the spotlight with the release of a new state government policy – A Cleaner Energy Strategy.

The policy mandated that by 2005, 13% of the state's electricity should be generated using natural gas to reduce greenhouse gas emissions and support the construction of a gas pipeline from Papua New Guinea to Gladstone. See: *http://statements.qld.gov.au/Statement/2000/5/24/beattie-releases-energy-policy*

The policy also triggered concerted exploration and production from the state's own natural gas resources – coal seams running through the Surat and Bowen Basins.

By 2007 Queensland was producing 63 petajoules

of CSG for domestic consumption – 15 times more than it did in 1999. By 2009, there were eight live proposals to export gas from Queensland with the state's coal seams consolidated as the dominant gas resource in eastern Australia.

Five years later another seven-fold increase in production, a huge ramp up in 'proven and probable' (2P) reserves and a A$70 billion investment ushered in the world's first CSG to liquefied natural gas (LNG) export industry linking upstream production in the Surat and Bowen Basins to downstream processing on Curtis Island near Gladstone.

In the Surat Basin, substantial resources under established and closely settled agricultural districts set the stage for a rocky start to relationships between gas companies, landholders and rural communities.

CSG's Arrival

Bipartisan political support for CSG's expansion in the Surat and Bowen Basins in the early 2000s was met in like measure by scepticism from conventional natural gas producers and concern from agricultural industries over the potential impacts of gas production – especially on groundwater and the Great Artesian Basin.

State government incentives for gas-fired electricity generation guaranteed unprecedented CSG development.

High levels of confusion and anxiety among rural landholders arose in the absence of a clear legislative framework for CSG industry access to private land and limited awareness of the rights and obligations surrounding land tenures.

But there was much more to come.

The accumulation of substantial new CSG resources in Queensland sparked global interest in its export potential and by May 2007, Gladstone's Curtis Island was earmarked by the state government as the site for the state's first liquefied natural gas processing hub.

In what critics described as an 1850s-style "gold rush" to secure gas resources, companies and their agents were accused of open aggression towards landholders coupled with an unwillingness to provide more than generic information about their proposed activities.

The recurring complaint from landholders was the lack of respect and understanding shown by company representatives – "and worst of all, they never shut gates after them."

To manage a dynamic development scenario, the state government opted for an "adaptive management" approach to regulating the CSG industry – providing what it, and other experienced observers, saw as the flexibility to deal with unforeseen outcomes or risks and to address community and environmental concerns.

While this approach mirrors the business approach of most rural landholders, it failed to provide a "rock solid" regulatory framework to manage the most pressing concerns on the ground.

Landholder anxiety coalesced around community groups including Save Our Darling Downs, Western Downs Alliance, Future Foods and the Basin Sustainability Alliance.

Ill-equipped to manage growth rural communities were pressured by the arrival of hundreds of FIFO/DIDO gas workers, placing additional demands on limited services and resources.

"The number one priority for all resource proponents must be to earn the trust of the communities in which they propose to operate. Without a social licence to operate, resource developers will see the sum of all their fears in expensive project rejections from state and federal governments."

Michael Roche, Chief Executive, Queensland Resources Council, 25 March 2011

Among a long list of shortcomings identified by landholders and rural communities were:

- The absence of a formal land access code or adequate regulatory framework for the onshore gas industry (as opposed to traditional mining)
- Limited information from CSG companies about their proposed activities
- Sparse scientific information on environmental impacts – especially critical issues such as groundwater use, management and potential threats to the Great Artesian Basin
- The transformation of rural communities by fluoro-shirted drilling teams, flag-bearing white trucks, wide-loads and increased traffic
- Low trust levels between gas companies and landholders and gas companies and local communities, which started from a low base and deteriorated under a weight of perceptions including a "develop at any cost" mentality
- Repeated assurances that the gas industry would automatically be good for everyone and a perception that governments were putting economics ahead of good policy and planning
- Inherent scepticism over outcomes reported by government and gas companies, and specifically the adherence of gas companies to environmental approval conditions

The Circuit Breaker

Community tensions boiled over when hundreds of rural landholders and local residents turned out for an anti-CSG rally at Cecil Plains near Toowoomba in April 2010.

Three months later at Roma, a state cabinet meeting was greeted by more than 2,000 people angry about landholder rights and fearful of the environmental impacts of CSG production.

In response, the state government formed the Surat Basin CSG Engagement Group, appointing former rural lobby group (Agforce) President John Cotter as Independent Chair to bring key stakeholders and decision-makers together.

The group included 5 Directors-General of relevant state government departments, the CEOs of the 4 CSG companies granted significant project status, 5 regional Mayors, 5 landholder representatives and a number of key scientists.

The group's goal was to get to know and understand each other's concerns and practices, discuss what each planned to do to quickly address the enormous challenges that had been created, and seize upon the opportunities for regional renewal and revitalisation.

The Surat Basin Engagement Group met every 6 weeks for almost 18 months leading up to creation of the GasFields Commission Queensland in 2012 and passage through Parliament of the *GasFields Commission Act* in 2013.

John Cotter was confirmed as Chairperson, supported by 6 Commissioners to manage and build a sustainable coexistence between rural landholders, regional communities and the onshore gas industry.

In the meantime, the major onshore gas players moved ahead winning government approvals for the Queensland Curtis LNG (BG Group, 2010), Australia Pacific LNG (Origin, 2011) and Gladstone LNG (Santos, 2011) projects. The last of the 'big four' – Arrow Energy – was given approval to further develop its CSG resources in the Surat and Bowen Basins to boost production for domestic and export supply.

From June 2012 to December 2015, the number of gas wells in Queensland more than doubled from 3,257 to 7,093.

While the onshore gas industry's major construction phase (i.e. LNG plants, pipelines) started winding down in 2015, wells are continuing to be drilled to maintain production for commercial supply contracts.

As of 30 June 2015, Queensland's 2P (proven & probable) reserves of CSG were estimated to be 42,733 PJ, an increase from just 5 PJ in 1996. Queensland CSG reserves represent more than 80% of gas reserves in Eastern Australia.

According to an economic analysis published by the Queensland Resources Council, directly and indirectly the oil and gas industry contributed $12.8 billion to the state's economy in 2015-16 and generated more than 65,000 full time jobs.

The GasFields Commission Queensland played a key role in helping to facilitate the largest resources investment boom in the state's history by working to resolve issues between landholders, gas companies, governments and regional communities.

As Mr Scott noted in his 2016 review of the Commission: "I have concluded that the Gasfields Commission has contributed substantially to the improved coexistence of landholders, regional communities and the onshore gas industry in Queensland, particularly by influencing the methods employed by CSG companies."

Bipartisan Political Support for Economic Growth

In response to government policy that 13% of Queensland's electricity be sourced from natural gas by 2005, the coal seam gas industry expanded rapidly from the turn of the century. By 2009, major investments in a world-first CSG-LNG export industry were in motion. As the industry's foundation regulator, the Queensland Government adopted an 'adaptive environmental management regime', meaning that changes to project environmental conditions were based on new information and/or research, as they became available.

While this process was aimed at reducing uncertainty over time through continuous systems monitoring, it also brought unintended consequences.

THE ISSUES

For landholders

- CSG industry expansion is being supported without an appropriate level of government oversight or ongoing regulatory independence.

For governments

- Bipartisan political support for the CSG industry development has been achieved despite continuing questions over environmental, social and community impacts.
- The state government appears to be willing to "take a chance" for economic benefit.
- The state government doesn't have the resources to support rapid industry development, including the capability and capacity to assess EIS documentation for new activity and major export facilities.
- Existing regulatory frameworks are not fit for purpose to accommodate a new industry of such scale and complexity.

For communities & business

- There is limited understanding of the CSG-LNG industry, which is fuelling uncertainty over what impact it could have on local communities, the environment, infrastructure, jobs and social amenity.
- Community concerns are mounting in the absence of factual and timely information.
- Local industries are taking up natural gas for the first time or increasing their gas demand.

For the CSG industry

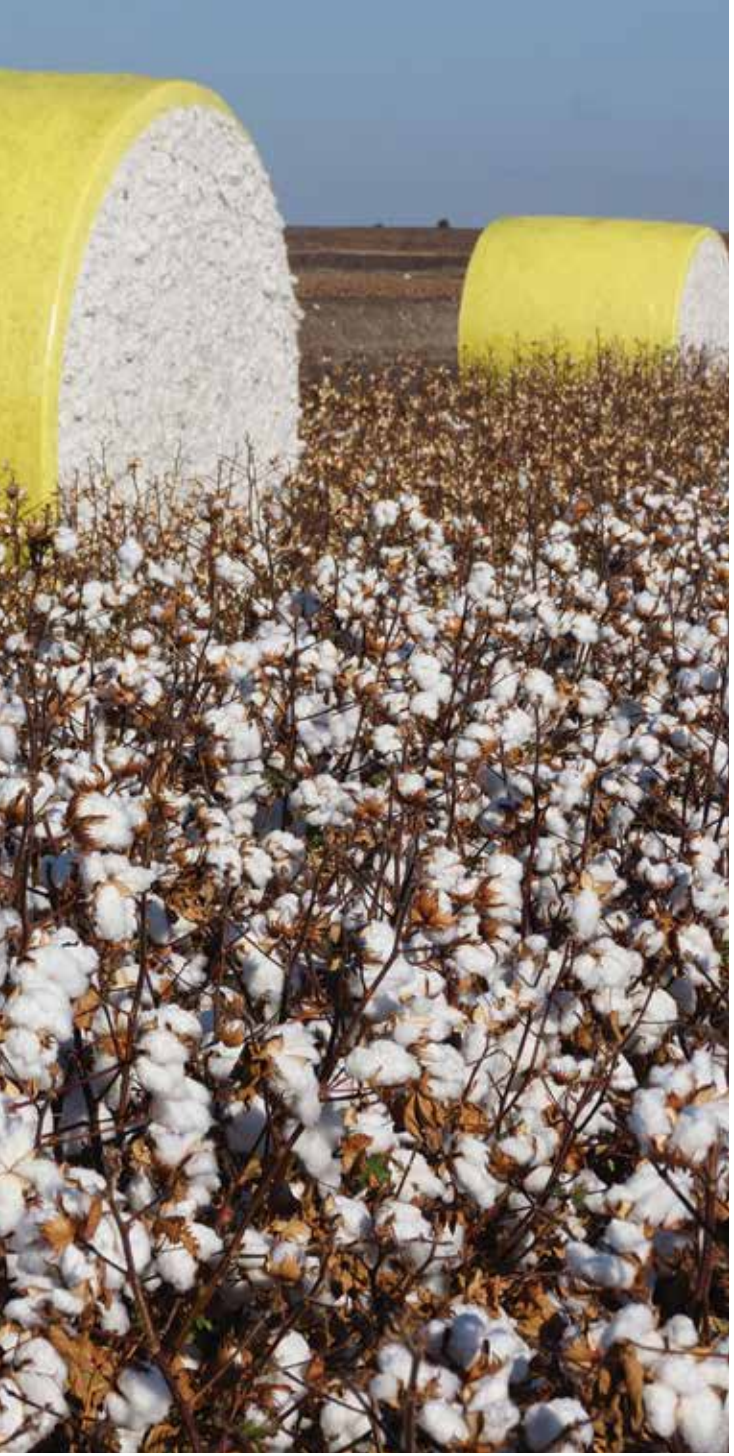
- Companies are mobilising quickly for feasibility studies and EIS processes.
- The priority is to secure gas resources and develop projects within an investment window.
- The lack of definitive legislation and regulation has meant an uncertain and changeable business environment resulting in significant project cost increases.

THE LESSONS

- Bipartisan political support is vital for new industry development from concept to completion.
- Governments need to clearly articulate the benefits of a new or expanded industry to host communities and in this instance, the value of energy diversity to the broader community.
- Comprehensive planning ensures an appropriate, fit for purpose regulatory regime supported by suitably qualified people.
- Governments need time and resources to undertake strategic infrastructure planning and ensure greater collaboration among stakeholders.
- Independent advisory bodies (e.g. GasFields Commission, Office of Groundwater Impact Assessment, CSG Compliance Unit) should be established early to:
  * Provide factual, independent information and referral
  * Facilitate discussion and consultation to ensure stakeholders understand industry impacts
  * Coordinate research
  * Facilitate issues resolution.

"As with any major commercial development, in addition to the technical challenges, there have been social challenges as well. These include interaction and coexistence of extensive surface operations with an established agricultural sector, interactions between gas production and groundwater aquifers in water-stressed areas, and the cumulative social and economic impacts of 3 large projects on a rural area."

Abstract – An overview of the coal seam gas developments in Queensland, Journal of Natural Gas Science and Engineering (© 2016 Elsevier B.V.). Authors: Brian Towler, Mahshid Firouzi, James Underschultz, Will Rifkin, Andrew Garnett, Helen Schultz, Joan Esterle, Stephen Tyson, Katherine Witt – University of Queensland.



QUOTE, UNQUOTE

On economic growth

"By investing in coal seam gas, we are ensuring a brighter future for Surat Basin towns like Dalby, Miles and Chinchilla. These are communities that have done it tough with drought over the last decade. We are giving these communities jobs and job security.

"Coal seam gas projects have already yielded about $1 billion worth of development across the state, and we have around 3,000 megawatts of gas-fired generation on the drawing board. With increasing drivers for more greenhouse friendly fuels, including a national emissions trading scheme by 2010, the long-term prospects for Queensland's coal seam gas industry are extremely positive.

"The potential benefits to this state from a liquefied natural gas industry are immense, including substantially increased export revenue and royalties."

Premier, Hon. Anna Bligh (1 May 2008)

"Employment in Queensland's CSG/LNG industry has reached a new high of almost 30,000 workers, with LNG companies also injecting more than $20 billion into businesses across the state.

"The three Queensland LNG plants on Curtis Island are world-firsts for converting coal seam gas to liquefied natural gas for export and at a time of global uncertainty this industry has been the driving force behind growth in our great state.

"The expertise of these workers will provide newly-honed skills that can transfer to other major developments in Queensland in the future. The CSG/LNG industry is a crucial driver in getting the Queensland economy back on track."

Deputy Premier, Hon. Jeff Seeney (17 June 2013)

On the regulatory framework

"Overall, the Queensland approach seems to embody many features of regulatory best practice, with cumulative, regional assessments revised regularly, purpose-built institutions and a strong focus on water issues."

International Energy Agency World Energy Outlook 2015 launch (cited by media)

"To be honest, I don't think the Queensland Government really understood all of the regulatory and compliance ramifications associated with the coal seam gas industry in the Bligh years. Their thinking I believe was that 'we will adapt the regulations as we learn and as we experience' which to me was a very valid thing to do. The government believed there were huge net benefits so they tried to mitigate the negative aspects as they understood them and then capture the positive benefits because these investment windows are very, very rare in this business."

Trevor Brown, Vice President, Santos GLNG (September 2016)

"The industry probably did go through a period of denial in terms of the necessity of some of the regulatory frameworks that were being introduced, but to its credit industry worked with the new regulations and the new institutions. We're now seeing the benefits with five out of six trains pumping LNG out to 13 or 14 countries around the world. It's a remarkable story."

Michael Roche, Chief Executive, Queensland Resources Council, (August 2016)

Tuesday, November 23, 2010

New one-stop shop to boost landowners' rights

Premier Anna Bligh today announced a package of measures to boost landowners' rights and respond quickly to any concerns relating to Queensland's LNG industry.

Ms Bligh said a new LNG enforcement unit would act as a one-stop shop to respond to safety, land access and environmental concerns.

The 36-member team would include environmental and groundwater experts, petroleum and gas safety specialists, and staff specialising in land access issues.

"We have put support for the LNG industry front and centre of the Government's economic agenda because it potentially means 18,000 direct and indirect jobs, a $3 billion boost to Queensland's gross state product and $40 billion worth of private investment," Ms Bligh said today.

"But we need to balance that with protecting landowners' rights and the safeguarding of our environment.

"The LNG enforcement unit will have its team based in local communities to respond quickly to any concerns.

"It will be fully operational by early next year."

Ms Bligh also announced a $3.5 million funding injection over three years to go to AgForce's "Agforward" program.

The program helps landowners negotiate agreements with Coal Seam Gas companies, including Conduct and Compensation Agreements.

PRESS RELEASE 31 OCTOBER 2010

BG Group sanctions Queensland Curtis LNG project

BG Group today announced that it has taken the Final Investment Decision approving implementation of the first phase of the Queensland Curtis Liquefied Natural Gas project ("QCLNG") following receipt of Australian Federal and State Government environmental approvals.

The first phase of QCLNG encompasses the development of a two-train liquefaction plant on Curtis Island near Gladstone in Queensland together with the associated upstream and pipeline facilities. BG Group will progress development and construction of QCLNG with immediate effect.

QCLNG will be operated by BG Group's Australian subsidiary, QGC Pty Limited ("QGC"). The first phase of the liquefaction plant will consist of two LNG trains with a combined capacity of 8.5 million tonnes per annum (mtpa). Over the next four years (2011-2014), BG Group plans to invest approximately US$15 billion in developing the liquefaction plant and related wells, field facilities and pipelines. There is also significant potential to expand QCLNG, with the construction of a third LNG train already covered by existing State and Federal approvals.

Australia Pacific LNG Project
Environmental Impact Statement

Creating cleaner energy for future generations

AUSTRALIA PACIFIC LNG

Executive Summary

origin ConocoPhillips

ASX/Media Release

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18 July 2007

Santos proposes multi-billion dollar Gladstone LNG Project

Santos today announced a proposal to construct a liquefied natural gas (LNG) facility at Gladstone in Queensland, which would see coal seam gas processed and sold into export markets.

The proposed Gladstone LNG project is for a 3-4 million tonnes per annum LNG processing train and associated infrastructure which is expected to cost a total of A$5-A$7 billion.

In a separate statement (attached) the Premier of Queensland, the Hon Peter Beattie MP, gave his support to the project and announced the granting of significant project status.

The announcement follows extensive feasibility and site selection studies over the past 18 months, which have culminated in an agreement with the Port of Gladstone Authority for Santos to secure a site to construct a LNG export facility on Curtis Island.

Commenting on the announcement Santos' Managing Director, Mr John Ellice-Flint, stressed the significance of the project to both Santos and Queensland, and the importance of the Government support as evidenced by the granting of a significant project declaration by the Coordinator-General.

Media Release

9 November 2010

Australia Pacific LNG project gains Queensland Government approval for its Environmental Impact Statement

Australia Pacific LNG Pty Limited today achieved a significant milestone with the Queensland Coordinator-General's approval for its coal seam gas (CSG) to liquefied natural gas (LNG) project.

Australia Pacific LNG is a 50:50 CSG to LNG joint venture between Origin and ConocoPhillips.

Approval, subject to the strict conditions outlined in the Coordinator-General's report, has been granted for the development of the gas field occurring progressively over a 30-year period; a 450km transmission pipeline; and an LNG facility on Curtis Island.

Australia Pacific LNG Project Director, Mr Page Maxson, said gaining the approval was a significant milestone in realising the potential benefits of the project and ensuring appropriate management of the potential environmental impacts.

Mr Maxson said, "The stringent conditions contained in the Coordinator-General's report, including detailed on-going monitoring and reporting requirements, should give the community confidence that the project will meet the high standards required during construction and operation.

"The project will form part of a burgeoning world scale, long term industry in Queensland, utilising Australia Pacific LNG's substantial coal seam gas resources in the Surat and Bowen Basins," said Mr Maxson.

Strategic Planning for Project Lifecycle

Four major consortia were examining the feasibility of developing their CSG tenements in the Surat and Bowen Basins simultaneously for export as LNG through the Port of Gladstone. The prospect of developing multi-user infrastructure and corridors was canvassed but, given different project timeframes including final investment decisions, the 3 approved LNG projects went ahead with stand-alone gas infrastructure in the CSG basins. This included 3 export pipelines (each about 500km long) and 3 LNG processing plants on Curtis Island in Gladstone Harbour.

While gas companies focused on the long-term environment and socio-economic impacts over the life of their projects, local stakeholders were predictably pre-occupied with "here and now" concerns such as groundwater contamination and availability.

THE ISSUES

For landholders

- In some cases, there are multiple pipelines crossing individual properties meaning multiple negotiations, agreements, business disruptions and strained relationships.
- Company pressure applied for decisions in unreasonably short times driven by their project timetables and imperatives.
- Insufficient time allowed to prepare for negotiations.

For the CSG industry

- Commercial drivers and competition make collaboration difficult, resulting in lost opportunity to provide more cost-effective and timely solutions to issues such as water and salt management, and the utilisation of shared infrastructure such as pipelines.
- Each company has established at least one community consultation committee in affected communities, resulting in "consultation fatigue." Companies are challenged to draw government, landholder and community attention to long-term planning outcomes.

For communities & business

- Opportunities to work on the delivery of long-term legacies from CSG activities are being negated by a focus on short-term issues.

For governments

- Increase in state government resources to support approval processes for 4 simultaneous 'state significant' projects – none of which are guaranteed to proceed.
- Local government needs additional resources and capability to review multiple EIS processes and comprehend the cumulative impacts of simultaneous major projects.
- Existing local infrastructure (e.g. water, waste, sewerage) is mostly incapable of meeting the demand created by new projects.
- Councils have insufficient time to focus on long-term planning for future community infrastructure needs.

THE LESSONS

- Companies must engage stakeholders from the outset and continue to make information available as project designs and plans evolve.
- Greater industry collaboration would assist in promoting and negotiating multiple project proposals.
- Significant social investment by CSG companies would deliver better coordinated and longer-term community benefits under a more responsive framework. (See section on Social Impact Management Plans)
- Individual stakeholder groups need information relevant to their needs – the right information at the right time using consultation processes that work for them.
- There is a lack of clear planning for gas field closure compared with the requirements for traditional mine closure plans and opportunities for progressive rehabilitation.
- "End of gasfield" planning would encourage further discussion about anticipated impacts at all stages of project life, including social impacts and handover of infrastructure to the community.

EFFECTIVE COMMUNITY ENGAGEMENT

In 2013, the peak body for the state's minerals and energy developers – Queensland Resources Council – commissioned an independent survey of communities across regional Queensland to measure the effectiveness of community engagement practices undertaken by members (including gas companies).

The project tested and confirmed a set of best practice principles for effective community engagement in a report entitled *Listening to the Community*:

Communication	Engage all stakeholders and community members in open communication via multiple channels Report clearly and accurately on a regular basis Provide a system for two-way feedback
Integrity & transparency	Clearly outline objectives, expectations and processes Provide high level of accuracy in communication
Follow through	Follow through with promises and commitments Keep the community informed on progress and any changes
Understanding & awareness	Understand the community you are operating in and engage on issues that are important to the community Acknowledge and address impacts, now and for the future
Respect	Recognise that respect is reciprocal Give the company a human face

https://www.qrc.org.au/wp-content/uploads/2016/06/2016-QRC-ListeningToCommunity-Report.pdf


Local business benefits

Social Investment (including Social Impact Management Plans)

CSG companies have made significant social investments in the communities where they operate, driven primarily by Social Impact Management Plans (SIMP) mandated by the state government. Projects involve health and safety, roads and transport, community services, indigenous participation, and accommodation and housing with the aim of:

- offsetting predicted impacts of construction activity on communities, and
- ensuring that local communities benefit from industry development.

THE ISSUES

For communities & businesses

- While funding is available for community organisations, considerable effort is needed by volunteers to navigate complex application processes.
- "Consultation fatigue" has emerged as over-stretched community leaders and volunteers deal with multiple companies to deliver community benefit projects.
- Enjoy newly-created parklands and recreational facilities with some questioning whether the money would be better spent on legacy projects.

For governments

- There are no clear directions on how this funding is best directed with company SIMPs largely uncoordinated.
- Some SIMP spending is too short-term – designed to alleviate immediate construction impacts rather than provide long-term social or community benefits.
- Corporate social investment isn't a substitute for government funding of community facilities and services.

For the CSG industry

- The identification of suitable community projects to offset the impacts of construction is problematic because of limited gas industry experience working onshore and with near neighbours.
- Company due diligence requirements attached to SIMP spending are administratively onerous by their nature.
- With greater collaboration, the spending of millions of dollars could be directed at more substantive and lasting legacies for affected communities.

THE LESSONS

- Structured coordination and long-term planning involving the local community, local government, state government and companies results in a more strategic and efficient direction of funds.
- The leveraging of funds from other private and government sources contributes to a strategic and sustainable legacy.
- Often more familiar with the challenges of managing economic contraction than growth, local government authorities would benefit from expert advice to negotiate and facilitate maximum benefits from SIMP spending.
- Investment in accommodation facilities and utilities must be proportional to the long term population rather than peak populations during construction phase.
- Expansion of utilities such as sewage systems should be modular to provide for fluctuating population.
- Companies, local government and community should work closely together early in the project planning phase to identify meaningful legacy projects for allocation of social investment funds.
- Explore opportunities for investment in legacy projects that will assist rural communities to become self-reliant, for example through upgrading electricity or telecommunication networks to support new industries or establish specialised regional training centres.

QUOTE, UNQUOTE

On cooperation

"When I look at what goes on around the world, next time around, we've got to do more cooperation. There was probably too much competition in the development of the three projects at Curtis Island and all the infrastructure that fed them. I think that's a learning that's been taken on board by the industry. So it may well be that if there is another train or more, we might see it under quite a different commercial model, and that's probably no bad thing"

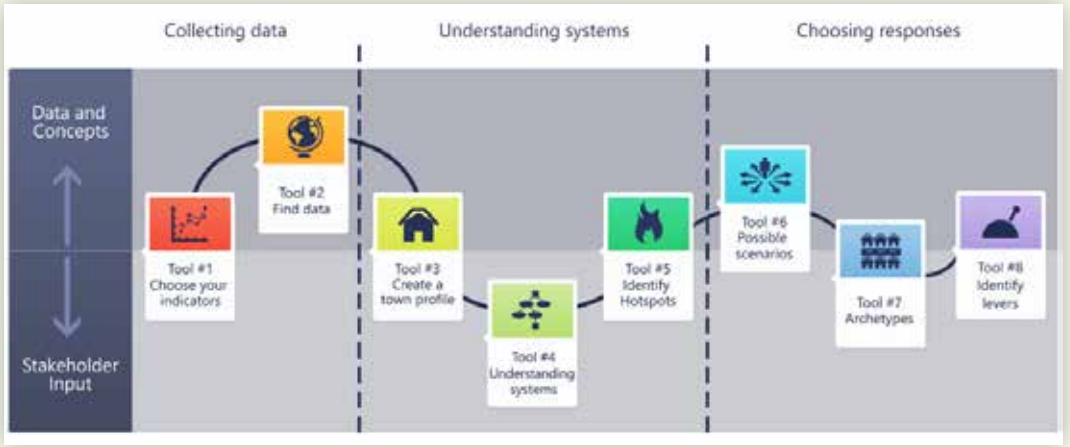
Michael Roche, Chief Executive, Queensland Resources Council (August 2016).

CASE STUDY:
University of Queensland Boomtown Toolkit

Major or multiple resource project developments such as those during Queensland's CSG construction boom can create a complex array of outcomes or 'cumulative impacts'.

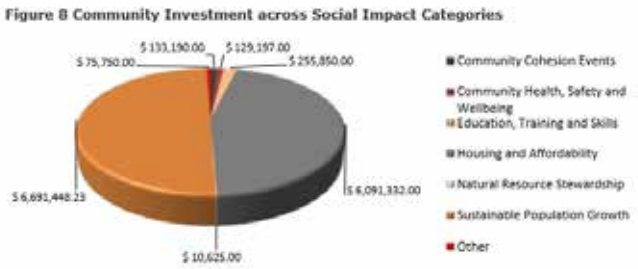
The University of Queensland's Boomtown Toolkit was developed for use by stakeholders, including government, industry and communities to address, characterise and provide insight into situations of rapid growth and investment.

The Toolkit can be used across sectors, and is designed to boost communication and foster collaboration. It can be used to collect baseline and historical information about communities, and enables the tracking of changes during a period of growth or decline.



https://boomtown-toolkit.org/

Australia Pacific LNG Social Impact Management Plan (SIMP) Addendum (2011-12)



http://www.statedevelopment.qld.gov.au/resources/plan/cg/simp/australia-pacific-simp-addendum.pdf

ORIGIN

CASE STUDY:
Roma Airport upgrade

Roma Airport underwent a $14 million upgrade, with the new facility commencing operations in April 2012.

The upgrade was supported by the state government and energy sector organisations Santos GLNG and Australia Pacific LNG, with contributions of $4.7 million, $2.5 million and $1 million, respectively.

http://www.maranoa.qld.gov.au/airports

CASE STUDY:
The Gladstone Foundation

07 June 2012

Queensland's gas industry today announced it has provided A$13.5 million to the Gladstone Foundation, a government body that distributes funding for social investment in the local region. The Australia Pacific LNG and Queensland Curtis LNG projects have each voluntarily provided A$5 million and the GLNG Project has voluntarily provided A$3.5 million.

The Foundation is a perpetual trust established by the Queensland Government in February 2011 to manage and allocate industry contributions to benefit the community.

http://gladstonefoundation.org.au/

CASE STUDY:
Queensland Minerals and Energy Academy

QMEA is Australia's largest and most successful industry/education schools partnership.

Established in 2005 with 18 schools, QMEA now engages with 38 schools across the state. With industry support, Project Officers provide genuine opportunities for school-industry engagement to provide a talent pipeline of employees into the resources sector and other related science, technology, engineering and maths (STEM) industries.

http://www.qmea.org.au/

CASE STUDY:
Banana Shire Regional Art Gallery

2 August 2013

Almost 150 people are attending tonight's official opening of Central Queensland's newest art gallery.

The Santos GLNG funded Banana Shire Regional Art Gallery in Biloela will be a part of a multi-million dollar development being undertaken by the Banana Shire Council.

Vice President Downstream GLNG Rod Duke said Santos GLNG had continued its support of community arts by contributing $500,000 towards the gallery.

http://www.santosglng.com/media/pdf3067/130802_banana_shire_regional_art_gallery.pdf

Obtaining Access to Private Land

Landholders in Queensland do not own the resources under their property, including oil, gas, coal or minerals. As the government releases and awards a resource tenure, the company must then obtain a number of approvals and agreements prior to commencing operations.

The Queensland Regulatory Framework requires the tenure holder to engage with landholders to discuss proposed exploration and development activitites and negotiate a Conduct and Compensation Agreement (CCA). As the CSG industry expanded, Queensland's regulatory framework to access privately-owned land for gas exploration and development was cast into the spotlight.

THE ISSUES

For landholders

- Generally unaware of, or don't understand the legal framework for companies to access their land and have trouble finding credible information.
- Assymetry in negotiating a CCA with feelings of being bullied, dominated and treated with lack of respect.
- Negotiations take too long, with some taking 3 1/2 years of frustration and uncertainty to complete, or left unresolved.
- Agricultural operations are interrupted, and in some cases viability impacted, while landholders divert attention to understanding their rights, seeking professional advice and negotiating access arrangements.
- Lack of transparency and clarity on development plans and technical information creates anxiety and suspicion about the company's intentions – many receiving inappropriate professional and other advice. This leads to long, drawnout negotiations and unrealistic expectations creating unnecessary emotional burden.
- Feelings of loss of control and powerlessness from sharing a property with an 'uninvited guest' take a toll on the well-being of individuals and families.
- Inconsistency in the legislative framework between CSG and other (extractive) industries creates confusion and frustration.
- Company documents seen as complex, cumbersome and overly legalistic (requiring the engagement of legal representation).
- Many who relied on their legal team to negotiate an agreement on their behalf, later found the agreement required changes after being found to be cumbersome or unacceptable.
- Landholders feel they don't have enough information about what the companies plan to do and therefore can't accurately assess the impacts. Maps provided by companies often have insufficient detail.
- Landholders feel they can't understand how the infrastructure planned for their property relates to the overall project plan, making negotiations more difficult.
- Confidentiality clauses in CCAs cause tensions, particularly between neighbours.
- Some landholders find it useful to set time limits on negotiations to prevent long delays.

"I didn't have any understanding of what my rights were or what the company's ability to access my land was. I really was coming in totally from the dark. I was in a knowledge vacuum on the subject."

Wayne Newton, Weeroona, via Dalby – Pipe Dreams, Landline, ABC-TV (May 2010)

"I am not proposing to stand here and defend the indefensible. Some of the companies we represent and many more we don't have made mistakes, and in the worst examples have taken far too long to remedy them."

Michael Roche, Chief Executive Queensland Resources Council, Speech to Toowoomba Chamber of Commerce (25 March 2011)

For communities & business

- Listen to media and community dialogue highlighting lack of balanced and respectful relationships, thereby generating lack of trust and tense relationships. Law firms establish strong presence in areas where gas development occurs, in some cases actively recruiting and representing clients.
- Some landholders report feeling "bullied" by their lawyers and struggle to access appropriate professional advice, which lead to CCAs not meeting their business needs. Others report feeling intimidated by their lawyers or the companies with threats of taking their matter to the Land Court. However, for some, the prospect of the Land Court is empowering.

For governments

- Rapid pace of multiple large-scale projects places increased demand on resources making it increasingly difficult to be proactive.

For the CSG industry

- Lack of guidelines and experience in obtaining CCAs to construct these projects across large areas of land leads to company behaviours that can result in unproductive working relationships, causing project delays and cost blowouts.
- Increasing legal fees as lawyers appointed to negotiate on behalf of the landholder.

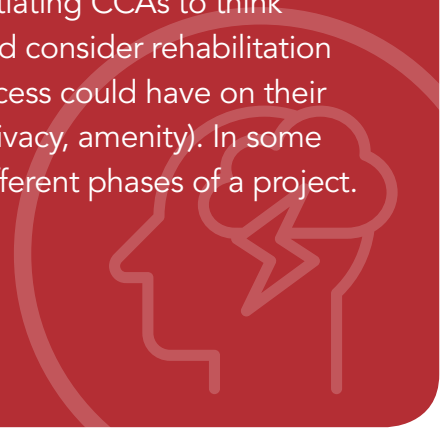
THE LESSONS

- Landholders find approaching a situation not of their making improved if they can obtain an outcome that minimises the impacts on their livelihoods and maximises potential benefits. It is helpful for them to understand that the CCA process is based on compromise.
- Appropriate resources are needed to develop a regulatory framework before the lack of effective regulation becomes a major threat to a developing industry.
- A regulatory framework can not on its own deliver balanced and respectful relationships necessary to provide sustainable access to private land.
- Government establish an independent and credible source of information about the land access framework, resource activity and land use in advance of the activity tasked with providing information and referral services as a component of a broader communication and extension program.
- Provision of targeted and accurate information to assist stakeholder understanding of the land access framework, respective rights and obligations, process for entering into agreements, and options for resolution of diputes.
- Documentation for agreement-making should be standardised and written in language to enable landholders to negotiate the land access or make good agreement themselves – legal fees in this framework should be capped.
- Landholders' are best-placed to negotiate access agreement terms directly with the company, working together to find solutions to issues or concerns – it should not be common practice to have a lawyer represent the landholders' operational and commercial interests as they generally have insufficient knowledge of the landholder's activities and business plans.
- Landholders should be sufficiently informed and confident to negotiate an agreement, including completion of the landholder's disclosure – in the same way they manage a property purchase (lawyers are engaged at the end of the negotiation just prior to signing).
- A landholder toolkit is required to ensure information is readily available and assisting them to become informed, self-reliant and confident to negotiate.
- A comprehensive and robust legislative framework provides the principles to support and manage land access effectively, noting that (ideally):
  * it should be in place ahead of demand.
  * representatives from stakeholder groups should be involved in developing the framework to balance interests.
  * a single code of conduct should be developed using consistent processes that are clear, fair and reasonable for all parties.
  * the framework should be subject to periodic review as

experience is gained and technology and processes change.

  * the framework should be consistent across other sectors requiring similar access (e.g. mining and telecommunications).

- The parties should view land access agreements as a business to business relationship, which means getting to know each other's values and activities in the interests of building respectful and balanced relationships.
- A good framework should be complemented by streamlined and efficient dispute resolution processes for entering into agreements – guidance in managing expectations is also beneficial.
- Companies must engage early with landholders about proposed activities and potential impacts, and work together to plan infrastructure layouts for their property.
- Companies should plan for a minimum of 12 – 18 months to work through land access arrangements, and infrastructure layout in the negotiation of a CCA – ensure an understanding of and respect for the landholder's activities on the land, living amenities and emotional connection landholders have to their land.
- Companies and landholders must focus on mutually beneficial outcomes, creating a "win-win"for both parties and providing a foundation for strong long-term relationships.
- A clash of cultures is sometimes a factor in slowing negotiations. Resource companies are essentially large corporate entities with multiple tiers of decision-makers and rotating staff. In contrast, many rural landholders run family businesses in their own right.
- Training programs delivered by trusted rural representative groups such as AgForce are important to build understanding among landholders, better prepare them for dealing with professional advisors, and improve negotiated outcomes.
- Training and information programs for landholders should be reviewed regularly and updated to reflect legislative changes, experience and adaptation to new or emerging industries or activities.
- Tensions regarding CCA confidentiality clauses ease when landholders are empowered with control over the level of disclosure.
- It is valuable for landholders negotiating CCAs to think beyond the construction phase and consider rehabilitation needs and the impact ongoing access could have on their farm business and lifestyle (e.g. privacy, amenity). In some cases, CCAs are negotiated for different phases of a project.



QUOTE, UNQUOTE

On the importance of communication

"The gas industry has had an enormous impact in southern Queensland and we'll never walk away from that. You can't walk away from the impact of what it's done but I've always said that we've got to learn how to work together; the whole key to the gas industry is better communication on all sides; it doesn't belong to the industry or the landholders.

"Unfortunately the Lock the Gate movement has done a lot of damage because they may well be right in their principles, but to encourage people not to talk is very bad news because communication, communication, communication – that's the answer. You don't have to agree. Actually, I've got a saying: don't lock your gate, open your gate, communicate, negotiate in good faith, but you don't have to agree. That way it stops the tension".

GasFields Commission Queensland Commissioner, Don Stiller (November 2016)

CASE STUDY: GasFields Commission Land Access Checklist

A checklist based on Commissioner Don Stiller's 7 quick tips for land access negotiations, also drawing upon other checklists and fact sheets published by government, companies and agricultural bodies.

http://gasfieldscommissionqld.org.au/gasfields/land-access/land-access-checklist.html

CASE STUDY: Santos GLNG Ready Reckoner

Construction and operations activity guide for landholders

http://www.santosglng.com/media/pdf5278/sg841-ready-reckoner-nov-2015-web.pdf

CASE STUDY:
QGC Land Access Activity Request System

Queensland Gas Company (QGC) overhauled its system for authorising Land Access with the aim of making it easier for staff and contractors to work within the access rules agreed for each property where QGC had an authority to work.

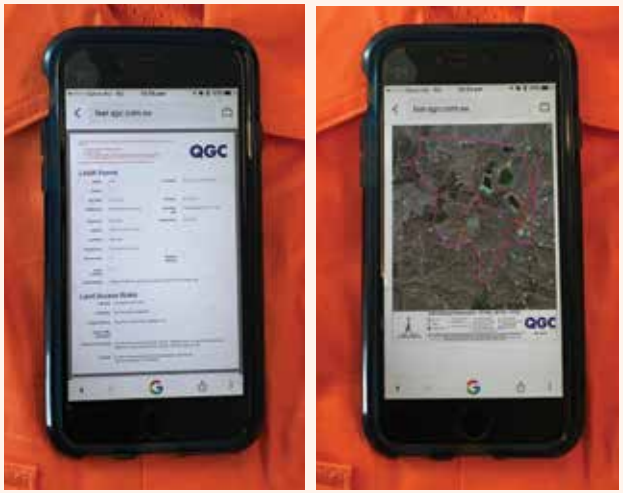
At the conclusion of a Conduct and Compensation Agreement, each property where QGC is authorised to work has a specific set of mutually agreed access rules. The large number of rules was the reason behind the overhaul of the Land Access Activity Request (LAAR) system. It is a web-based application designed for access via desktop, mobile phone or tablet.

The LAAR system generates a comprehensive, up-to-date electronic permit that integrates property specific access rules so QGC staff and contractors have access to the latest information. Automatic notifications are also provided to landholders using their preferred contact method (SMS/ Email).

The LAAR system improvements help make it easier to inform landholders of the works taking place on their land while also enabling QGC staff and contractors to ensure that their work is consistent with what the company has agreed to with landholders.

It's all about helping to minimise or eliminate the disruption landholders may experience from QGC activities.

Source: QGC



"To the middle distance we're looking at somewhere over 100 wells, as you can see right here in front of us.

"It's all about working together and accepting that we're not going to give it to them for nothing. They need us so that they can carry on their business and we'd like to see that we do it in partnership with them."

Peter Thompson, Echo Hills Farm, via Roma – *Pipe Dreams*, Landline, ABC-TV (May 2010)

Compensation for Impacts on Privately-Owned Land

As part of obtaining access to private land, the Queensland legislation requires a tenure holder to compensate the landholder for:

- loss of use of surface area where infrastructure is installed
- diminution of the property value
- diminution of the use made or that may be made of the land or any improvement on it
- severance of any part of the land from other areas of the landholder's property
- any cost, damage or loss arising from the carrying out of activities on the land
- accounting, legal or valuation costs the landholder necessarily and reasonably incurs to negotiate or prepare a conduct and compensation agreement.

The legislation prescribes the individual elements that must be addressed when calculating compensation, providing flexibility in the methodology to determine compensation. While government administers the legislation for Land Access and compensation, it does not have the power to make a determination on the appropriate amount – this is the role of the Land Court.

THE ISSUES

For landholders

- Confidentiality clauses in agreements or reluctance for individual landholders to disclose their business arrangements leads to varied payment structures, lack of transparency and increased uncertainty.
- Landholders often feel ill-equipped to negotiate the compensation amount to be included in the CCA due to concern about whether the offer of compensation is appropriate for the proposed activity on a particular property.
- Approach to compensation negotiation varies:
  - Some feel more comfortable negotiating the compensation amount with knowledge of what others had been paid; preferring a clear guide on the "number" representing a "fair deal"
  - Others prefer confidentiality and value the opportunity to negotiate a commercial arrangement
- Although the law does not require compensation for landholder time, many feel that there is inadequate provision in compensation for time taken to understand what companies were seeking, obtain professional advice, and negotiate access arrangements.
- Some express interest in seeing a determination of compensation for an agreement, to provide a precedent they can rely on – others are cautious believing it may restrict the ability to negotiate.
- As the industry expands and benefits become evident, approaches are made to companies inviting development to secure compensation and other benefits.
- Benefits have enabled landholders to become debt free, diversify income streams, expand enterprises and commence succession planning.
- Improved roads and access around large properties provides time efficiencies.
- Receiving payment for land access compensation, make good measures or purchase of pipeline easements creates tax implications such as capital gains and depreciation of assets. Compensation does not accommodate the difference between the amount paid and net retained by the landholder.
- Compensation payments can disincentivise some landholders from farming, instead selling properties and leaving the region.

For governments

- Unable to confirm or guide information on compensation amounts paid to landholders as the government is not a party to the agreements. There is no role or mechanism for government to monitor compensation amounts.
- Inconsistent state and Commonwealth tax regimes, unintended consequences for landholders who receive payments.

For the CSG industry

- Amounts of compensation have continued to increase since the early 2000s.
- Commercial offers are generally made to landholders which is higher than the compensation required under legislation, generally allowing for other matters such as landholder time in negotiating.

THE LESSONS

- The economic benefits for landholders are maximised when they are aware of the opportunities resulting from a company's planned activities. In addition to compensation, mutually beneficial outcomes such as fencing, roads, grids, dams, bores, and opportunities for landholders to sell services, gravel and water should be explored and considered.
- Gas development provides financial benefits that enable effective succession planning, ensuring that the next generation of farmers are well positioned to gain skills and take over enhanced agricultural businesses.
- Early, open and transparent communication relative to an individual landholder builds trust, and is critical to facilitating positive interactions including compensation negotiations.
- Taking time to understand each others activities and needs will deliver timely and fair agreements for conduct and compensation.
- It is essential for landholders to seek professional accounting and taxation advice when entering into agreements involving payments including compensation.
- Compensation payments and easement purchase prices require further discussion between government, industry and landholders to ensure that the landholder receives the full benefit to which they are entitled.

Top tips from landholders for successful CCA negotiations

1. Do your homework – inspect gas fields, talk to other landholders.
2. Work with a neighbour – one you get along with, and support each other.
3. Be firm but reasonable in your negotiations – don't ever state your price first.
4. Communicate your own requirements early on – no surprises.
5. Be careful choosing your own professional advisory team.
6. Know your own role within your negotiating team, but you are still the captain.
7. Manage your lawyer – determine when and how best to use them.
8. Get to know who's who in the gas company – identify the right decision-makers.
9. A good working relationship can create additional opportunities.
10. If you have a dispute, make sure you have proper evidence to back your claims.
11. Don't take it personally – take a business approach.
12. Insist on being paid for your time – all of it at an appropriate rate.
13. Keep good written record via email and diary notes of all communications and impacts e.g. dust, noise, traffic.

Treated CSG water on tap for irrigators

LIZ WELLS
1 Nov 2013, 4 a.m.

News

Veolia's Ben Bowen, QCG's Angus Hetherington, QGC operations director Walter Simpson, Lisa France MP, Deputy Premier Jeff Seeney, BG Australia chairwoman Catherine Tanna and QGC managing director Derek Fisher.

THE first plant of its kind in Australia to supply treated CSG water to farms for irrigation is open, 35km south-west of Chinchilla.

QGC's Kenya water treatment plant was officially opened by Deputy Premier Jeff Seeney last Wednesday.

http://www.queenslandcountrylife.com.au/story/3584936/treated-csg-water-on-tap-for-irrigators/

In 2014 following a government-funded workshop under the auspices of peak rural lobby group Agforce, 74% of landholders felt confident about adequately negotiating a CSG Conduct and Compensation Agreement compared with 43% beforehand. 64 percent said it helped them understand their rights and responsibilities and 51% said it gave them the confidence to negotiate from a stronger position.

Maintaining Relationships and Ongoing Access to Private Land

Once an agreement for land access is reached, both parties have obligations and companies and landholders need to work together to ensure their respective activites continue unimpeded and with minimal interruption to the other party. Rules for accessing the land are agreed for individual properties and processes put in place to ensure they are adhered to.

Relationships can become strained when either party does not follow the rules, or operates in a disrespectful manner. Failure to practically and promptly resolve impacts ultimately leads to disputes that can be financially and emotionally costly.

THE ISSUES

For landholders

- Frustration resulting from companies changing land access representatives – relationship-building with multiple company representatives is time consuming, historic interactions and issues are lost, and the company no longer takes ownership of earlier incidents.
- Belief that once a CCA is in place, the company does not place the same importance on working relationships and often fails to deliver on commitments.
- Unacceptable delays in companies attending to rectification work where erosion, subsidence, rehabilitation or other claims are submitted.
- Some landholders feel intimidated by companies threatening to take their matter to the Land Court but others find the prospect of the Land Court empowering.
- Dissatisfaction and annoyance when companies do not abide by agreed land access rules such as gate management and use of plastic tape – incidents of gates left open generate unnecessary work such as mustering and repeated occurences lead to irritation and exasperation.

For communities & business

- Sharing messages of lack of balanced and respectful relationships damaged the industry's reputation and generated lack of trust and tense relationships in local towns.

For governments

- Regulatory framework and compliance activities scrutinsed as land access issues and landholder concern spreads to local communities and broader audiences through media reporting.
- Government strengthened the land access framework, including the Land Access Code, aimed at balancing the interests of landholders and gas companies and providing clarity on respective obligations.
- Identified the need for further support, implementing the CGS Compliance Unit and later the GasFields Commission Queensland to provide information and convene parties to provide advice and resolve disputes without the need to use formal processes.
- Recognised as the industry continued to expand that efficient, timely and cost-effective dispute resolution processes are required to deliver certainty and finality.

For the CSG industry

- Pressure from project schedules require massive recruitment drives and upskilling to deliver all aspects of the project – at times lack of direction or buy in from senior management and actions of inappropriately skilled staff can inadvertently contribute to breakdown in relationships.
- Difficulty balancing company hierarchy, lack of community support, project drivers and resourcing for landholder interaction.
- Senior company executives have to demonstrate readiness to work face-to-face with landholders to find solutions when particular negotiations are required, or as relationships need strengthening.
- Rehabilitation and other land impacts are generally assessed against rehabilitation conditions in the environmental authority rather than the needs or expectations of a landholder (e.g. stocking rates).
- Contracting arrangements at times lead to lengthy delays in rectifying landholder concerns such as erosion, subsidence or rehabilitation due to restrictions relating to defect/warranty works or the need to access areas outside of the agreed disturbance footprint.
- Companies need to implement sophisticated systems to successfully comply with a large number of individually negotiated and variable sets of agreed land access arrangements.

THE LESSONS

- Companies must develop-long term relationships, adhere to land access rules and treat the landholder and their property with respect.
- Relationships deteriorate when companies do not do what they say they will do.
- Land access officers are the public face of the company and must be resourced to proactively manage long-term relationships and empowered to make decisions and agreements with landholders.
- Companies should ensure retention of land access officers as this is the key to forging successful long-term relationships.
- Land access liaison is not supported like other professions – industry should work with other sectors that rely on land access officers to develop a professional training program for land access to ensure consistent approach and experience with landholders.
- A streamlined and efficient system to promptly attend to complaints and rectification works is critical to ensure landholders do not experience losses and are not unnecessarily inconvenienced.
- Genuine engagement between decision-makers, including at the most senior levels, is required to proactively address concerns and resolve disputes.
- Establish independent information and referral services to support resolution of disputes during the term of an agreement and within dispute resolution clauses, including:
  * advice on agreement terms and reasonable expectations
  * recognised experts, and
  * readily accessible dispute resolution services.
- Promotion of entities that provide compliance and other advisory or mediation services is important to support landholders and community.
- Ensure factual information is disseminated on matters that are misrepresented in the media through other means, to facilitate knowledge, understanding and confidence in the industry, by publishing factual information, data and technical information about particular matters:
  * to correct the record on matters misrepresented in the media
  * where a regulator has completed an investigation, or
  * that have been decided by a court.
- Each rural property is different and a "one size fits

all" approach doesn't work, meaning land access arrangements are often more complex and time-consuming than companies anticipate. Access arrangements may need to vary from time to time in response to a landholder's operations.

- A lack of follow-through by a company on commitments or on the actions of contractors is a major factor leading to relationship breakdowns with landholders.
- Investigation and evaluation of landholder concerns must address reasonable expectations of a landholder to undertake their activities and ensure access and livability – prompt action must be taken and implemented in a respectful manner.
- Simple/standard mechanisms should be established to facilitate land access to rectify unintended disturbance such as erosion outside the agreed footprint.
- Where systems work well and follow-through on commitments is prompt, the relationship between landholders and companies is stronger.

Origin Energy's 'Gate Mate' program

The flip sign indicates to personnel how the gate must be left. The two options are "Please leave this gate SHUT" or "Please leave this gate OPEN". The landholder can change the sign as required.

Photo Courtesy of QGC

Water Resources

Water is the life blood of rural communities, especially those relying on groundwater for drinking as well as industrial and agricultural purposes. The lack of quantitative data on potential impacts of gas production on water availability, quality and groundwater resources elevates community and government concern. Building stakeholder confidence in the management of potential impacts on groundwater users, and understanding the "make good" process, was slow and only partly successful.

THE ISSUES

For governments

- Local government seek to understand the potential impact on town water supplies for future regional planning and to respond to broader community concerns.
- State government recognise the need to build technical knowledge and assess groundwater impacts – established the Office of Groundwater Impact Assessment (OGIA) and developed a robust and internationally-respected groundwater model and management framework.
- In response to community concern, industry-specific standards were developed for water management, water supply and dam construction.
- Develop incremental and 'adaptive' policy in response to community concerns and rapid industry development – ongoing legislative review leads to regulatory creep.
- In response to community concerns about a resource as precious as water being defined as a 'regulated waste', legislation is changed so that water becomes a 'waste' (by-product of gas production) and water quality parameters are set to allow treated water to be used for irrigation and other approved purposes.

For communities & business

- Businesses relying on groundwater for activities such as cattle feedlots are concerned about ongoing access and quality.
- Concerns that replacement "make good" bores will further deplete already stressed aquifers.
- Increasing concern based on media and other campaigns, that water produced from coal seams as a result of gas production is 'toxic'.

For the CSG industry

- Implement extensive water and groundwater monitoring and management programs within and outside gas development areas, adding significant unanticipated expense to project development.
- Work through new regulatory requirements without precedents for guidance such as "make good" for groundwater impacts.
- Seek to provide information to community and anti-fossil fuel activists, invest heavily in technical research activities and community information programs.

For landholders

- Concerns of a decline in groundwater levels and implications for the future of the Great Artesian Basin, and fears of groundwater contamination from stimulation techniques such as hydraulic fracturing (fraccing).
- Many express disbelief at government policy classifying water associated with gas production as "regulated waste" preventing beneficial use with others concerned about water quality.
- Concerns over the construction of large dams with potential for leakage and wasting water through large volumes of evaporation.
- Strong objection to construction of brine dams after reverse osmosis treatment and subsequent safe disposal of salt.
- Significant commitment of time to understand and review technical information.
- Concerns over the connectivity between the Walloon Coal Measures and the Condamine Alluvium aquifer – leads to collaboration in research.
- Replacement bores and other "make good" provisions often not delivered in a timely manner, and have unexpected tax implications for landholders, including depreciation and capital gains.
- Many landholders recognise water produced during CSG production was the same as that pumped from their own bores for stock and domestic use.

THE LESSONS

- Baseline technical information should be gathered before new industry activity begins to allow a shared understanding of existing situations and consistent modelling of impacts.
- An independent technical body such as the Office of Groundwater Impact Assessments (OGIA) has shown itself to be a valuable source of independent advice, coordinating research activities, storing baseline and monitoring data and calibrating predictions from modelling over time.
- Continual communication and engagement to explain industry-specific processes to stakeholders is essential. Hydraulic fracturing ('fraccing') remains a poorly understood production technique in terms of relevance to the Queensland CSG industry, particularly in terms of purpose, process, frequency and risks.
- An industry-wide protocol/template for "make good" agreements would help to manage expectations, ensure consistency and reduce anxiety in negotiations.
- The story of the Queensland gas industry needs to be written, reflecting the extensive experience in Queensland, specifically in relation to production techniques, prescriptive regulation and potential impacts on natural resources such as water.
- Proactive dialogue and response to misinformation will be critical to reaching a shared understanding of the activities, integration, risks and benefits for rural and regional communities and the state of Queensland .
- Establish an independent body to provide early education and engagement on key aspects of the industry operations and concerns of the community, particularly on environmental matters and resources such as water on which rural communities rely.
- Consistent, relevant, stable and outcome-based regulation is required to manage activities and potential impacts based on facts – minimise unnecessary impediments to development, including construction standards and costs.
- An understanding of, and experience in the industry matures, review regulatory framework to ensure it is fit for purpose, providing appropriate balance of gas development for domestic and export supply with benefits for landholders and risks to the environment in which it operates.

QUOTE, UNQUOTE

"When I pressed Arrow Energy in my role as Chairman of Central Downs Irrigators Ltd about what proof they had to guarantee that the Condamine Alluvium would not be impacted, it became clear that it was only anecdotal.

"Arrow then came up with a plan to conduct a scientific experiment to determine the exact nature of the connectivity between the Condamine Alluvium and the Walloon Coal Measures. The plan involved measuring the water movement between the aquifers when water was pumped from the Condamine Alluvium.

"I approached the Office of Groundwater Impact Assessment (OGIA) to lead this research. OGIA went on to manage the overall project design and implementation working in close collaboration with Arrow Energy and the Queensland University of Technology. Arrow financed the drilling of the monitoring bores and the pumping tests and this was received well by myself and other irrigators.

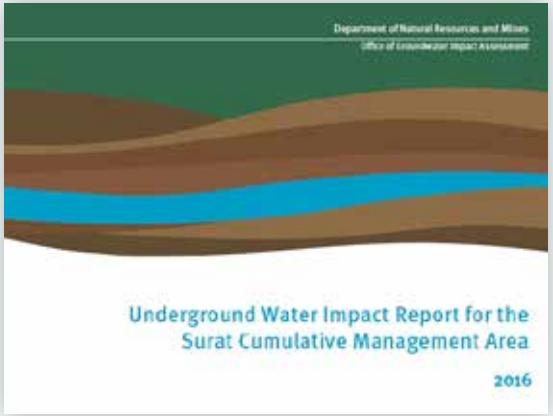
"The results of this research were invaluable to the irrigator community because they showed there was no significant flow of water between the two aquifers on this site. It has improved our understanding and established a baseline against which we can monitor the impact of CSG activities if they were to proceed in the future."

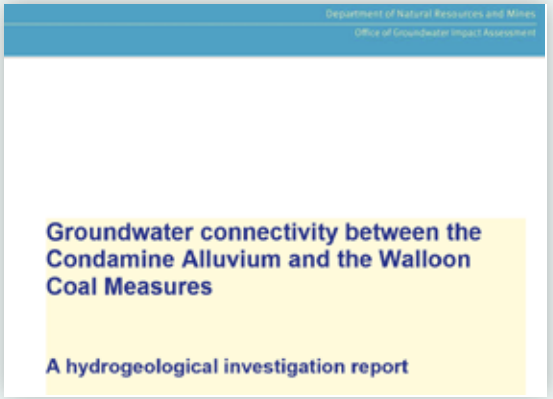
Graham Clapham, Cecil Plains farmer and landholder (September 2016)

CASE STUDY: Office of Groundwater Impact Assessment (OGIA)

The Office of Groundwater Impact Assessment (OGIA) is an independent government body established under the Water Act 2000. It is responsible for undertaking groundwater assessments, establishing groundwater management obligations and identifying petroleum tenure holders who are responsible for negotiating "make good" agreements with landholders. The assessments and obligations are published in Underground Water Impact Reports (UWIR) on a triennial basis.

The 2016 UWIR has been approved, replacing an original 2012 report. The 2016 UWIR refined the projected impact of CSG development on groundwater systems in the Surat CMA using a revised groundwater flow model. This model has incorporated new research findings about the nature of groundwater flow systems, hydrogeological and geological formations, interconnectivity of aquifers, and spring function.





https://www.dnrm.qld.gov.au/ogia/surat-underground-water-impact-report

Source: https://www.dnrm.qld.gov.au/__data/assets/pdf_file/0019/403282/condamine-report-hydrogeological-investigation.pdf

Video (Arrow Energy): https://www.bing.com/videos/search?q=arrow+energy+vimeo&&view=detail&mid=7E5837EC4D561A1A352C7E5837EC4D561A1A352C&FORM=VRDGAR

CASE STUDY: CSG Net and CSG Online

The Department of Natural Resources and Mines' Coal Seam Gas Compliance Unit (CSGCU) has implemented the groundwater monitoring program, CSG Net and CSG Online.

The program is in its fourth year and was developed by regional CSGCU staff to meet the needs and concerns of landholders living in areas adjacent to CSG development across the Surat Basin. CSGCU staff identified that landholders had a lack of knowledge in relation to groundwater systems and changes to groundwater levels in their regional areas. Landholders were receiving conflicting information from a range of sources on the impacts of the CSG industry on their valuable groundwater resources with no single point of factual reference.

CSG Online involves continuous monitoring loggers and telemetry at strategically located sites. Data from the loggers is available to the community live and online through DNRM's Water Monitoring Portal and the Queensland Globe.

CSG Net engages landholders in CSG areas in groups. They are provided with information on the CSG industry and groundwater systems and encouraged to measure groundwater levels in their private water bores on a monthly basis. At regular intervals landholders forward the data to the department for storage within the department's groundwater database.

Monitoring data recorded by landholders, CSG companies and CSG Online are used to develop an Annual Status Report specifically tailored for the geographical area of the CSG Net group. The monitoring results are shared and discussed at annual workshops involving landholders, CSG company hydrogeologists and the CSGCU team.

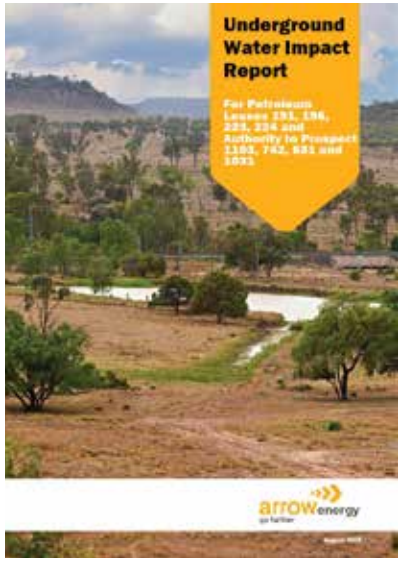
https://www.business.qld.gov.au/industries/mining-energy-water/resources/land-environment/landholders/groundwater-monitoring

CASE STUDY: UQ 3D Water Atlas

The 3D Water Atlas was created by the University of Queensland (UQ) Centre for Coal Seam Gas to help develop a greater understanding of the impact of CSG production on groundwater systems in the Surat Basin, by minimising groundwater impacts and identifying knowledge gaps requiring further research.

The 3D Water Atlas integrates a range of data, including groundwater chemistry, water bore levels and geological strata, and displays them on a 3-dimensional platform. It uses an open source sub-surface virtual earth platform that can be accessed via most commonly used web browsers at no cost.

https://wateratlas.net/



UWIR for the Moranbah Gas Project, Bowen Basin, Queensland

Biosecurity

The risk of weed spread can be exacerbated by soil disturbance, flooding, wet weather, delivery of stock and supplies, importation of gravel, increased vehicle and people movements, and prolonged construction programs. Companies are required to prevent or minimise the introduction of declared plants and pests. The potential for spread of Parthenium is of particular concern to landholders in the Surat Basin.

AgForce research has confirmed biosecurity risks are among the greatest concerns for rural landholders with CSG activity on their property. As the relative risk of spread or introduction of plants and pests vary across properties and activitites, it is important that gudelines are implemented to ensure biosecurity is appropriately managed.

THE ISSUES

For landholders

- Lack of control over increased vehicular and people movements creates heightened anxiety of potential for weed spread if biosecurity protocols are not observed.
- Mistrust of gas company weed hygiene certificates, some insisting on third party certified washdowns over a certified company employee/ contractor washdown.
- Feel the need to monitor vehicle movements and request additional clauses in CCAs to prevent introduction and spread of weeds.
- Feel the need to oversee or inspect vehicles entering the property and require log books, gate inspections or other mechanisms, adding to administrative burden for both parties.
- Cost and time involved containing and/or eliminating weed outbreaks.
- Difficulties in determining and proving responsibility for weed incursions, other than declared weeds.

For communities & business

- Opportunities for local business to provide services such as washdown facilities.

For governments

- Some LGAs (e.g. Western Downs Regional Council) build new washdown facilities by leveraging gas industry grants.

For the CSG industry

- Incurred increased cost in travelling to particular washdown facilities nominated by the landholder despite other appropriately qualified and convenient facilities, including mobile washdown facilities.
- Difficulties in determining and proving responsibility for weed incursions, particularly when weeds lie dormant in the soils until areas are disturbed, and the regulatory framework and agreements requiring only declared pests and plants introduced by the company to be managed by the company.

THE LESSONS

- All parties need to be aware of and implement appropriate biosecurity protocols under the *Biosecurity Act 2014*. This includes the education of gas company staff and contractors on weed spread.
- Education and training of all stakeholders on respective obligations, risk assessment, treatment standards and mitigation measures for management and/or control of pest plants and animals is critical to establishing confidence and reducing landholder time monitoring the activitites of the company.
- Landholders can assist by undertaking a baseline weed assessment before a project starts, implementing a biosecurity plan and staying vigilant.
- Companies and landholders should partner in weed management programs where the landholder wishes to have an active role.
- Some landholders find it beneficial to engage an independent weed expert to benchmark their weed control program, allowing them to claim financial compensation from companies to assist in weed control.
- Company employees and contractors must have knowledge and understanding of local conditions or at least a willingness to seek local advice.
- For large properties where a significant number of wells and other infrastructure is involved, limiting the amount of material such as gravel sourced from outside the property can reduce the risk of introducing pest plants – this may also provide an additional income source for the landholder. In this instance clear documentation and understanding of respective obligations regarding 'ownership' of the gravel pit and any rehabilitation requirements is important.
- Manned biosecurity huts at the entrance to the property may be effective in areas where declared plants such as Parthenium are present and therefore present a higher risk.
- Ongoing training and awareness programs to ensure pest plants are treated or managed as they appear and vehicles are not driven through infestations.
- Establishment of common understanding between landholder and company on standard methods for treating and managing key pest plants, with reference to authoritative published information and standards.
- Standardisation of clauses in CCAs focussed on mitigating and minimising the spread of weeds and clearly stating respective obligations in relation to weed outbreaks will assist in CCA negotiations.
- Weeds often appear after soil is disturbed due to the seed bank on the soil – clauses in CCAs for gate registers or log books are not relevant in this regard.
- Collaboration between companies and landholders in weed management programs is most effective to maintain biosecurity measures.

CASE STUDY: CSGCU Weed Management Program

Prevention of the spread of weeds is one of the most important issues facing farmers across Queensland. With the high risk posed by CSG activities (i.e. multiple vehicles entering properties and areas of disturbed soil) the Department of Natural Resources and Mines' Coal Seam Gas Compliance Unit (CSGCU) implemented their Weed Management Program under the Land Access Code. The program focuses on encouraging industry to adopt best practice, beyond their legal requirements, and is complemented with regular proactive inspections. This includes vigorous vehicle hygiene practices, regular monitoring and thorough documentation and reporting.

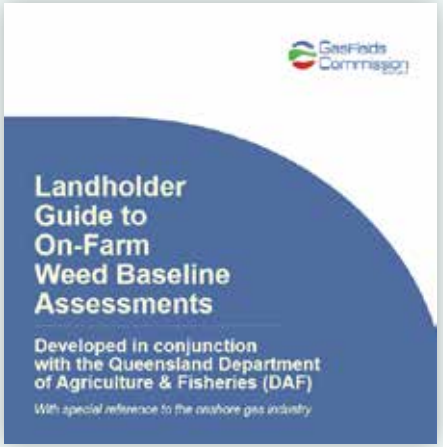
To establish the program, CSGCU collaborated with the community, industry, the GasFields Commission Queensland and government departments. The program is delivered to the four major CSG companies operating in the Surat Basin as well as a number of smaller operators elsewhere in the state. This deliberate targeting of weed management practices has helped develop community trust and acceptance of the industry through strong and visible regulation.

The program has reduced the risk of weed spread, increased the confidence of the community that their land is protected and, most importantly, minimised the spread of weeds.

Source: Department of Natural Resources and Mines Coal Seam Gas Compliance Unit 2017.

CASE STUDY: Landholder guide to on-farm weed baseline assessments

GasFields Commission Queensland and the Queensland Department of Agriculture and Fisheries jointly developed this publication aimed at providing landholders with guidance in conducting baseline assessment for weeds and introducing procedures to minimise or prevent the spread of weeds. This publication also includes procedures, templates and techniques for use by landholders, including weed sampling techniques to validate assessment.



http://www.gasfieldscommissionqld.org.au/resources/gasfields/gfcq-weed-guide.pdf

PRESS RELEASE 18 JULY 2014

QGC supports Surat Basin weed washdown expansion

QGC Pty Limited has helped expand a network of gas industry supported facilities designed to halt the spread of weeds with today's opening of the first vehicle washdown station in Eidsvold.

The natural gas company invested A$700,000 in the design and construction of the new facility, which was opened by North Burnett Mayor Don Waugh.

The station, to be operated by North Burnett Regional Council, is next to the Eidsvold saleyards and is expected to be used by landholders, resources sector workers and transport and machinery contractors.

Wash down funding offer to help stop weed spread

28 Oct 2014

A funding program that helps landholders protect their properties from weed infestation is underway in the Maranoa region.

The Queensland Murray-Darling Committee (QMDC) and Santos GLNG are calling for landholders to apply for funding to set up their own private wash-down facility.

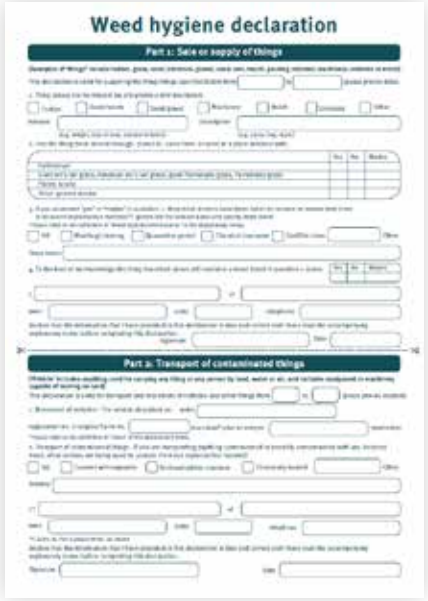
The offer is open to all land managers in the Maranoa Regional Council and Arcadia Valley areas.

The initiative funds up to 50 per cent of the first $10,000 in costs to establish individual facilities on private property, and 30 per cent once the total cost reaches over $10,000.

http://www.santosglng.com/media-centre/media-releases/wash-down-funding-offer-to-help-stop-weed-spread.aspx

Vehicle and machinery checklists
Clean-down procedures 2014

https://www.daf.qld.gov.au/__data/assets/pdf_file/0011/58178/IPA-Cleandown-Procedures.pdf



Weed hygiene declaration

Part 1: Sale or supply of things

Part 2: Transport of contaminated things

http://www.bne.com.au/sites/all/files/content/files/Weed_Hygiene-Declaration.pdf

Erosion Management

Construction of gas infrastructure including wells, pipelines, processing facilities, roads and dams, requires earthworks to clear areas of land and ensure rehabilitation and erosion control structures are in place to minimise impact on landholder property.

THE ISSUES

For landholders

- During the installation of pipelines during the 2010 and 2011 significant weather events, flooding occurred in areas resulting in property access being cut, in some cases interrupting farming operations and property management.
- Gully erosion emerged in particular areas as a result of infrastructure installation and incorrect placement of, or inadequate sediment and erosion control structures.
- Subsidence and tunneling occurred along gathering lines, sometimes creating risks to livestock.
- Experienced slow company response to rectify erosion issues.

For the CSG industry

- Were not prepared for the amount of rework that was needed due to weather events or other non-conformities in construction.
- Rehabilitation proved difficult to achieve in some environments due to soil quality, drought and grazing pressure.
- As the environmental approval conditions evolved, at times conditions did not provide sufficient ground area for construction of erosion control structures in the authorised disturbance footprint.

THE LESSONS

- Roads and other gas infrastructure placement, design and construction must consider potential for interruption and diversion of natural flow of floodwater and appropriate erosion and control measures implemented.
- Pre-construction discussions between gas companies and landholders should take into account existing and proposed surface water flows, and planning for infrastructure such as roads, wells, gathering lines, pipelines etc.
- Utilisation of technology and tools such as property mapping, satellite imagery, and agronomy services provide valuable information in the planning stage and ongoing monitoring provides information on changes to the landscape as the result of disturbance.
- The use of erosion control measures and structures such as "whoa boys" assist in rediverting water along natural channels.
- Timely completion of construction activities and commencement of rehabilitation reduces the potential for erosion and disturbance for landholders.
- Engagement of a specific work crew to undertake rectification works following construction would minimise inconvenience and costs to landholders experiencing interruption due to erosion and sedimentation.

CASE STUDY: Pipeline pointers

In 2015, the GasFields Commission Queensland conducted a stocktake of the land rehabilitation and engagement practices of the three major gas pipeline easements connecting the Surat Basin gasfields to LNG export processing facilities at Gladstone.

The pipelines were constructed between 2011-15 with a combined length of almost 1,500 kilometres – roughly the distance between Brisbane and Melbourne. The stocktake's purpose was to identify lessons learned by onshore gas operators, pipeline contractors and rural landholders to help inform current and future land rehabilitation and engagement practices.

The stocktake drew on desktop research, mapping, telephone discussions, a survey questionnaire, and onsite visits with individual landholders, as well as meetings with relevant government agencies and staff from the onshore gas operators. It included 64 property locations of different land types and rural operations, representing a significant proportion of the combined export pipeline easements.

The report (link below) contains 10 key learnings drawn largely from landholders' experiences during the construction and subsequent rehabilitation phases of these pipelines.

http://www.gasfieldscommissionqld.org.au/resources/gasfields/fact-sheets/pipeline-pointers-learnings-from-pipeline-stocktake-topic-sheet.pdf

Noise

Noise associated with construction and operation of facilities is regulated under the environmental authority. Depending on the nature of activitites and distance from facilities, design technology and ambient environment, sources of noise can include drilling, generators, pumps, vehicles, flares and compressor stations. In many cases a CCA contains an alternative arrangement to allow for levels of noise that may exceed those prescribed in an environmental authority.

Available monitoring data does not enable definitive assessment of potential long-term impacts of noise exposure on human health. This remains a contentious issue.

THE ISSUES

For landholders

- Unsure of rights when experiencing noise impacts, particularly when the company is compliant with the prescribed limits in the environmental authority.
- Noise is identified as a contributor to ill-health including headaches and loss of sleep in some areas in proximity of gas infrastructure.

For governments

- Pressure to find a balance, respond to complaints, implement interagency approach to regulation, noise monitoring and complaint management.

For communities & business

- Concerns increase over health impacts from gas activities such as noise, in response to information from social media.

For the CSG industry

- Grapples with reputational issues resulting from community angst and media claims regarding noise impacts.
- Increased costs associated with reducing drilling activity from 24 hour to 12 hour operations and modification of equipment (e.g. drilling rigs) to minimise noise.
- Increased costs in the form of expensive mitigation measures to meet Environmental Authority levels, restriction of, or changes to operations, compensation for landholders, and at times pressure to purchase properties as a result of noise from activities.

THE LESSONS

- Rural environments are characteristically quiet and the introduction of industrial noise in the landscape has potential to generate complaints and health concerns by landholders located close to facilities.
- Noise levels of the surrounding environment should be considered during the design phase for a project – background levels should be established ahead of the project.
- Long-term infrastructure such as wells and compressor stations should be designed to minimise noise, including ground flares and other attenuation measures.
- Landholders in proximity to infrastructure expect extensive monitoring of noise levels, although the regulated level often exceeds the level a landholder may find acceptable.
- Early engagement with landholders that may experience noise, particularly arising from drilling and workover operations, is critical so that alternative arrangements can be agreed to minimise exposure and interruption to their lives – some landholders may be happy for a company to assist with holiday arrangements or temporary relocation, some seek monetary compensation and others may not be concerned.
- Further research is needed to establish a scientifically-valid position on the potential for continuous, long-term noise generated from gas activities to affect human health.
- Involving key community stakeholders in identifying health concerns can assist in evaluating potential health impacts through science and research.
- Baseline and ongoing monitoring data is required to increase understanding of potential health impacts from noise.

CASE STUDY:
Innovation and impact reduction

Focus on community impact is essential early in the piece, when opportunities can be taken to design the field and facilities in a way that reduces impact. Origin, as operator of the APLNG upstream facilities, made the decision to use electric-driven compressors, which drove the extension of the Queensland electricity network further west into the Surat Basin and allowed for the use of more efficient compressors which make materially less noise and emissions than gas-driven compressors. Ground flares were also chosen to reduce the noise and visual impact of flaring events.

Photo courtesy of Origin Energy

CASE STUDY:
Management of commercial and industrial noise

In Queensland, a legislative framework is in place to regulate noise generated from commercial and industrial processes. Noise is defined under the *Environmental Protection Act 1994* as a vibration of any frequency – whether emitted through air or another medium – and can be considered an environmental "contaminant".

The Environmental Protection (Noise) Policy 2008, established under the Environmental Protection Act, identifies environmental values to be enhanced or protected; stipulates acoustic quality objectives for enhancing or protecting the environmental values; and provides a framework for making consistent, equitable and informed decisions about the acoustic environment. This includes the qualities of the acoustic environment that are conducive to human health and wellbeing, including the ability of an individual to do any of the following—sleep; study or learn; and be involved in recreation, including relaxation and conversation.

The Guideline for Prescribing Noise Conditions for Petroleum Activities establishes the noise management theory and considerations that the administering authority can use to:

1. Assess impacts on environmental values from noise impacts as part of an application for an environmental authority for resource activities other than mining; and

2. Develop noise conditions, including measured noise limits, to best achieve the object of the Environmental Protection Act.

https://www.legislation.qld.gov.au/LEGISLTN/CURRENT/E/EnvProtNoPo08.pdf

CASE STUDY:
Noise monitoring in Tara region

In March 2013, Queensland Health published a summary risk assessment of health complaints and environmental monitoring data in relation to the CSG industry in the Tara region. This included an assessment of complaints relating to noise and vibration from CSG activities.

Although investigations at one site showed that low frequency noise did not exceed the relevant environmental authority, the report acknowledged that levels could be a source of annoyance, and that a potential consequence in some people of noise annoyance can be headache.

Queensland Health concluded that "if concerns continue in the community about low frequency noise, additional assessment by DEHP and/or industry stakeholders may be required to determine if noise mitigation measures are required."

The report also recommended that "a community reference group drawn from CSG areas may assist in the identification of health, community and social concerns at a community level and in the development of appropriate responses."

The Queensland Government has asked the GasFields Commission Queensland to convene such a reference group as a priority.

https://www.health.qld.gov.au/research-reports/reports/environmental-health

Providing Opportunities for Local Businesses

Local businesses operating in the Surat and Bowen Basins vary in size and capabilities to leverage opportunities presented by the growth of the CSG industry. The speed of development posed some challenges for local businesses, while also providing a windfall for others with established credentials in the resources sector.

THE ISSUES

For landholders

- Difficulty finding employees, services and tradespeople due to increased demand and costs for resources and services.
- Opportunities arise to perform contracting services or supply materials to CSG companies.

For governments

- Increased demand for development approvals and licences has implications for customer service and technical team staffing.
- Assistance packages for resource regions under increased population and service demand pressure are limited and often untargeted.
- Significantly skilled staff across government departments limits capacity to respond effectively to community growing pains.

For the CSG industry

- Commitment to 'local content' is compromised by cases of local resistance in meeting high OH&S and accreditation standards.
- There are varying definitions of 'local content' across companies (and even within them).
- Investing time and resources in helping to build local business capacity pays dividends.
- Reputational impacts are felt if a local company fails to satisfy contractor requirements.

For communities & business

- Understanding of CSG company expectations, contracting requirements, available contracts and opportunities is poorly understood.
- Significant cost and time is spent on pre-qualification, auditing and ongoing compliance requirements for tenders.
- Company requirements differ and some systems (e.g. IT) are new to local businesses.
- Businesses found the need to register on multiple portals.

For communities & business - continued

- Working with large multinational companies presents a significant cultural shift for many local businesses.
- Long payment cycles and slow payments from gas companies present cash flow and other management issues.
- Hiring of local staff by gas companies robs existing businesses of talent.
- Gas development increases opportunities for people to enhance their skills, qualifications and experience locally.
- Growing local economies provides an opportunity for young people to stay where they were raised, or to return to communities they left previously because of limited opportunity.
- Community members report difficulties in accessing services and tradespeople due to increased demand and costs for resources and services.
- More business, employment, shopping and entertainment opportunities are created through associated development.

THE LESSONS

- Local business groups (e.g. Surat Basin Corporation, Toowoomba and Surat Basin Enterprise) are valuable promoting industry linkages and assisting businesses.
- Communicating information about pre-qualification and other requirements early in the process (even before first tender is advertised) allows local businesses to prepare.
- Early communication and information provision should address cultural issues and large corporate practices, allowing local businesses to plan accordingly.
- Workshops provide a valuable means of encouraging local businesses to adapt product and servicing offerings, and invest in new technologies to capitalise on opportunities offered over the project lifecycle (not just the construction phase).
- The development of standardised procurement processes including pre-qualification and induction helps local businesses.
- A centralised registry of contractors/suppliers and opportunities allows local businesses to register once and be notified directly rather than negotiating multiple portals which may not be well maintained.
- Long-term business plans and secure contracts should be developed, seeking opportunities to diversify to accommodate the business environment in the post-construction phase.
- Forums held by government, chambers of commerce, GasFields Commission and other entities are useful vehicles for raising and facilitating solutions to broad issues common to stakeholder groups.

QUOTE, UNQUOTE

"Gas companies and their procurement personnel need to be reminded that there are well-qualified and very capable local businesses that would be cost-effective in delivering services to them locally; it's important that the gas companies continue to stipulate the relevant local content provisions when awarding contracts to major contractors, and that they continue to monitor and report on how those provisions are being satisfied."

Geoffrey Campbell, Country Petroleum, Dalby (November 2014)

On long-term commitment

"Because those six LNG trains are very hungry beasts, there will continue to be a need for drilling exploration programs so there are still going to be billions of dollars spent in those communities over the next five years, and that will shore up communities like Chinchilla, Miles, Dalby and Roma – and, of course, big service centres like Toowoomba. That's important for people to know that there is that commitment from the companies out of just the need to make sure that those LNG plants are operating at maximum capacity and service their contracts."

Michael Roche, Chief Executive, Queensland Resources Council (August 2016)

On accreditation and pre-qualification

"We wouldn't have got the commissioning work without the three ISO accreditations, or got into the gas industry without the accreditation and pre-qualification … our business owners saw from day one that we weren't going to grow or develop without them – it's just a cost of doing business."

Steve Condon, RIE Services, Chinchilla (March 2016)

"The onshore gas companies often raise the cost of government regulation on their business, but what about the cost of company regulation on its own suppliers … we get audited at least once a month in relation to one company or another and there are even sometimes different requirements from different divisions within an individual gas company … these prequalification, audits and inductions cost local suppliers thousands of dollars each year when you take into account the direct and indirect costs, including having drivers off the road for up to a week at a time to attend courses … we know safety is paramount and that there must be site specific inductions (which are paid for by the companies) but it would help reduce overall compliance costs if they could implement a standard gas industry prequalification and auditing regime."

Transport Operator from the Maranoa Region (February 2016)

"One of the benefits of the CSG industry is its contribution to diversifying and growing regional economies. I was talking to one of the drillers, and she was born and raised in Roma, went to school and studied engineering in Queensland, but because she was in the high technology drilling field, she really couldn't get a job in her local area and wound up working overseas in Africa and central Asia. With the growth of CSG, she was able to come back and work in Roma using those skills that she brought from overseas. This is one example of the CSG industry supporting young people moving back to regions, bringing with them university degrees, different technologies and experience that adds to the diversity of the regions. There are many of those individual stories where locals have been able to come back or remain in towns, and that's great for local communities."

Rick Wilkinson, GasFields Commission Queensland Commissioner (November 2016)

"RIE has also invested in local people through both school and work-based apprenticeships."

Steve Condon, RIE Group, Chinchilla (March 2016)

CASE STUDY: Local Content

Local content refers to opportunities available to businesses based in the local community to provide goods and services to the onshore gas industry and their lead contractors. In order to better position themselves for supply chain opportunities, local businesses are encouraged to research the needs of individual projects, pre-qualification requirements and company procurement processes.

The GasFields Commission Queensland produced this checklist to assist businesses in preparing to engage with the onshore gas industry:

http://www.gasfieldscommissionqld.org.au/resources/gasfields/fact-sheets/business-local-content-checklist.pdf

CASE STUDY: Sector Code of Practice

Most Queensland resources companies are parties to the Queensland Resources Council's Minerals and Energy Sector Code of Practice for Local Content (2013).

The Code is an industry-led self-regulated initiative. QRC is responsible for administering the Code, which encourages resources and energy companies to:

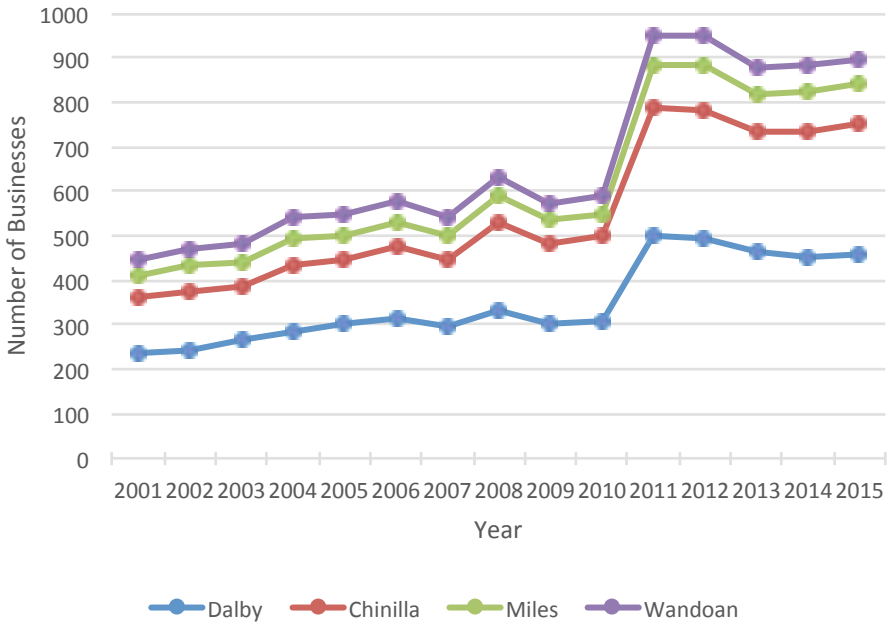
- adopt the principle of "full, fair and reasonable" opportunity for capable local industry to participate in the associated delivery framework
- access information about the Queensland Resources and Energy Sector Code of Practice for Local Content
- complete a Code Industry Report (CIR) annually to assist the QRC in completing the annual Code Effectiveness Report
- participate in an annual forum of resources and energy companies and stakeholders where improvements to the code, company initiatives and associated commercial and government-funded programs will be discussed
- participate in the QRC's Local Content Working Group.

https://www.qrc.org.au/policies/local-content/

"One of the pleasing things I see as a result of the so called coal seam (gas) boom is that parents are now seeing the opportunity for their children to travel away to university to gain degrees, to become trades people and then to return to their home district and have a future there amongst the family and friends they grew up with."

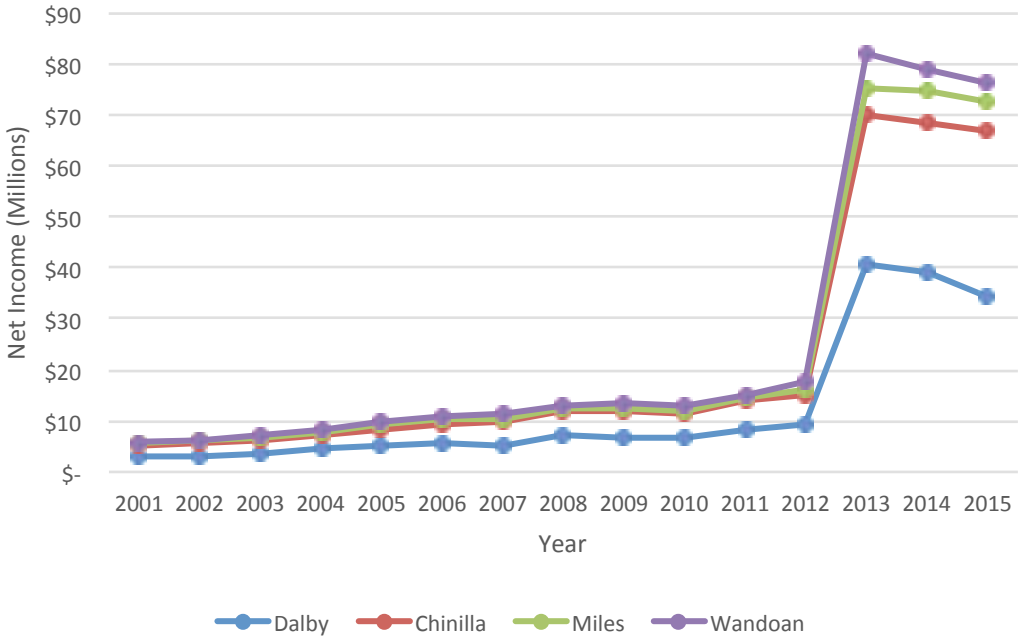
Hon Ian Macfarlane MP, Minister and Resources and Energy and Member for Groom, House of Representatives, 23 May 2012

Local Businesses in Gasfields



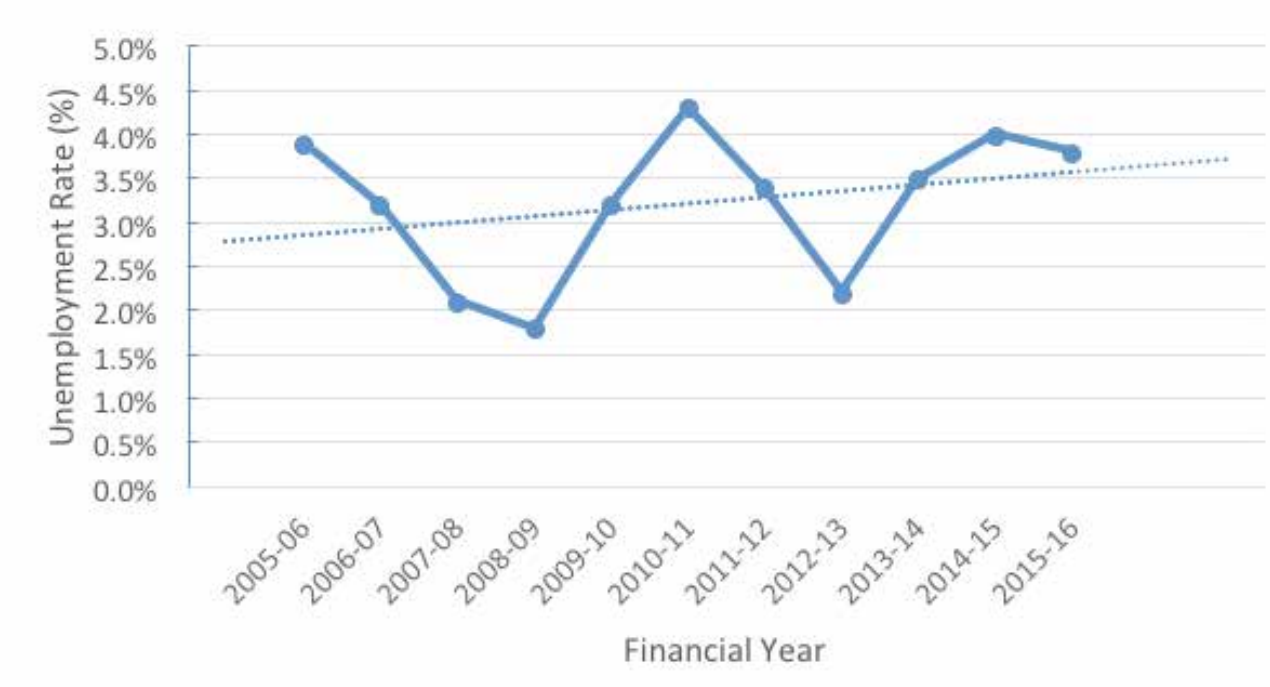
Source - UQ Boomtown Toolkit (2015)

Local Business Income in Gasfields



Source - UQ Boomtown Toolkit (2015)

Unemployment Rate in Darling Downs/Maronoa Regions



Financial Year	*Unemployment rate (%)*	*Number employed*
2005-06	3.9%	56,300
2006-07	3.2%	59,300
2007-08	2.1%	62,300
2008-09	1.8%	66,500
2009-10	3.2%	62,900
2010-11	4.3%	61,100
2011-12	3.4%	63,600
2012-13	2.2%	63,400
2013-14	3.5%	68,000
2014-15	4.0%	63,200
2015-16	3.8%	64,800

Source - UQ Boomtown Toolkit (2015)

Transition Planning from Construction to Operations

Regional communities experienced rapid growth as locals returned to the region to upskill and obtain employment and experience. Businesses expanded in number and size, building communities where populations had been in decline.

As these communities prospered, there was insufficient understanding and planning for the lifecycle of CSG industry development. As the peak of the construction phase ends, activity in some towns declines, albeit with higher sustained activity than before gas development.

THE ISSUES

For landholders

- With an immediate focus on issues such as groundwater impacts and salt contamination during development and construction phases, other considerations may be sidelined.

For communities & business

- Absence of or poor quality long-term business planning affects adaptability resulting in business closures and/or downsizing creating stress for owners, employees and those who use services.
- Social pressures arise when adapting to new conditions (e.g. changing population and demographics).
- Decrease in services associated with population size.

For governments

- Perception that the State should do more to regulate companies and better manage change.
- For councils, added and ongoing maintenance costs for infrastructure built during construction phase.
- Reduced access to revenue streams after initial injection of funds from companies under SIMP requirements.
- Reduced corporate investment for community services meaning a greater reliance on council and local businesses for funding and support.

For the CSG industry

- Perceptions they fail to communicate, or at best, ineffectively communicate project milestones, timeframes and impacts.
- Unanticipated impacts associated with drought, fluctuations in gas prices etc. may coincide with planned transition phase, causing an exacerbated decline in industry activity.

THE LESSONS

- Consider, and plan for, the impact of external influences during the life of the project (e.g. price movements, weather events such as severe drought, flooding etc.)
- Promote ongoing dialogue and awareness-raising of project timelines from day one. Monitor this communication to ensure that it is 'cutting through' noise associated with the construction phase.
- Greater integration in the planning process between councils, industry, communities and government; ensure planning includes immediate construction impacts, 'steady state' production phase and end-state requirements.
- Industry funding established the Centre for Coal Seam Gas (UQ) and supports research by the Centre for Social Responsibility in Mining over the life of the project. A major product of this research is a toolkit designed to help communities monitor change, identify cause and effect and plan the next steps to realise long-term benefits.

https://boomtown-toolkit.org/

CASE STUDY: Centre for Coal Seam Gas

The University of Queensland's Centre for Coal Seam Gas (CCSG) was established at the end of 2011 by UQ, QGC, Santos and Arrow Energy to conduct and coordinate research on the technical and social challenges associated with CSG.

In 2014, APLNG joined the Centre and all major CSG operators are now on board.

The Centre, together with representatives of the industry members, Queensland regulator, and several project specific advisory groups work collaboratively with many academic partners to further CSG science.

The centre has focused on developing a broad portfolio of research projects to address the demand for new and improved scientific knowledge. The research program is balanced across four main themes: Water, Social Performance, Geoscience and Petroleum Engineering, each lead by a professorial Chair.

As of the end of 2016, we have 33 current research projects and have allocated over $14 million in research funding, in addition to four co-funded professorial chairs. These projects draw on the expertise of more than 50 researchers from 18 UQ schools and research centres as well as collaborators from other Australian and major international research institutions. Within this, we have 27 PhDs and MPhils associated directly with CCSG funded projects and over 20 more across UQ engaged in research closely related to the onshore gas industry.

https://ccsg.centre.uq.edu.au/research_review_2016

QUOTE, UNQUOTE

On importance of communication

"Right from the start we were very clear that there was a big development phase, then there would be an operating phase. Which is equivalent to building your house then living in it. Once you've finished building the house, you don't keep the builders around. You might have a gardener, and a guy to come clean the pool … but you don't have the builders around. I use that analogy a little flippantly but a lot of the local community expectations were built up when they thought that all of these people were coming and they were going to stay forever. We were as clear as we could be … Local governments it seems had a hard time resisting the temptation to release more land, build more houses, thereby gain more revenue for the local coffers."

Trevor Brown, Vice President Santos GLNG (September 2016)

"TSBE and the Commission were excellent in terms of the information they circulated about the post-construction scenario."

Jamie Kennedy, Aergo International (September 2016)

"There have been some confusing and mixed messages about what work is around and what the future will be like for these onshore gas projects. This has stemmed partly from a lack of access to the relevant decision makers in these projects, and the impact of unforeseen global market pressures such as low commodity prices. While there have been several supplier forums organised with industry about this next phase of operations, it is extremely important that regular updates and information continue to be provided as local firms look to respond and manage their own businesses."

Kay Maguire, Maguire Coaches, Chinchilla (November 2014)

On planning for operations

"I think over the next three years it (the gas industry) will be seen as just another industry in this region and I believe our time as a local contractor will come during this next operations and maintenance phase – servicing and maintaining the existing infrastructure. I am hopeful the long-term work contracts will come through over this next phase as we have the accreditation, we have the experience and we are local."

Electrical Contractor, Darling Downs (February 2015)

CASE STUDY:
Surat Basin Industrial Park, Chinchilla

Digging in for long term gas business opportunities

Environmental consulting and contracting company, Perfect Earth, saw real long-term opportunities providing rehabilitation and erosion control services to the onshore gas industry in the Surat Basin by opening a Chinchilla office in 2015.

Director Marcus Koolen says the Sunshine Coast based business got its start in South East Queensland in 2007 undertaking erosion control work for the local council and on Curtis Island (Gladstone) they developed relationships with a number of major civil works contractors and tier 1 firms during the onshore gas industry construction boom, which also took them to the upstream gas fields across the Surat Basin.

"We essentially worked out way from Curtis Island all the way back to upstream," he says.

"Those relationships, plus our quality and workmanship immensely helped us move ahead as a leading company undertaking a range of erosion and sediment control rehabilitation and revegetation works in relation to all manner of gas infrastructure such as roads, ponds, right of ways, hubs and so on," he says.

"We grew our initial workforce from seven to thirty-eight at the peak in 2013" he says.

From a feature article on the GasFields Commission Queensland website, 6 September 2016.

Workforce Resourcing and Housing

The CSG industry needed a workforce of thousands during construction and has transitioned to a smaller operational and maintenance complement. In the Surat Basin, an adequate construction workforce could not be sourced locally. The big numbers and array of skills required created an influx of construction workers predominately on FIFO/DIDO rosters who were accommodated in camps. In recognition that accommodation options would inevitably change over time, CSG projects were conditioned by the state government to support targeted affordable housing strategies.

THE ISSUES

For landholders

- Some worker camps are established on private land.

For governments

- Demand to develop and release land for housing, and negotiations to develop and implement affordable housing strategies take time (and may eventually contribute to oversupply).

For communities & business

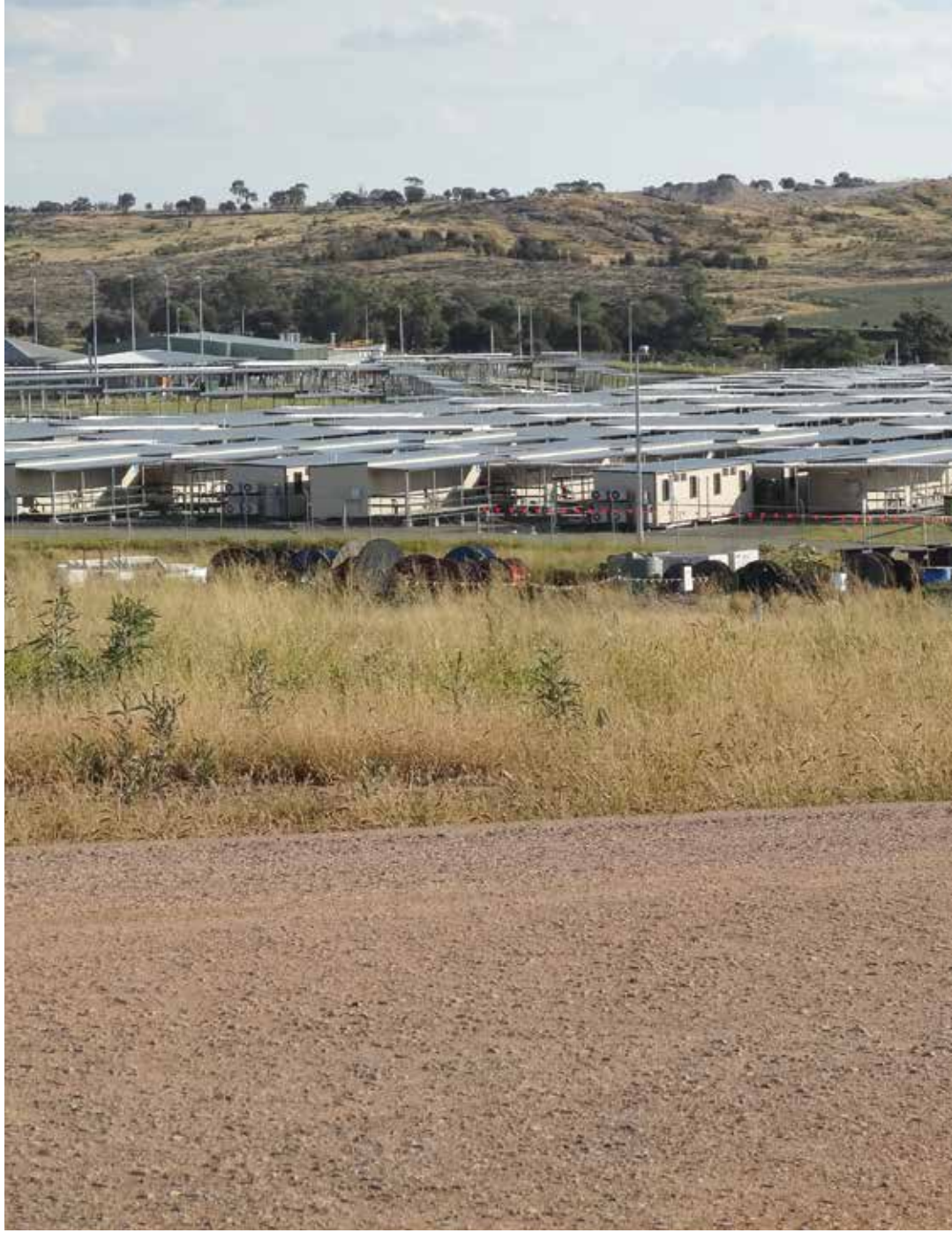
- Housing and accommodation are at a premium during early construction with motels, caravan parks and private dwellings taking the overflow from purpose-built camps.
- By the end of the CSG construction phase, government project conditioning and housing market speculators contributed to a housing and accommodation oversupply.
- At the height of a construction boom, accommodation costs disadvantage local employees in non-CSG businesses.
- Worker camps reduce the economic benefit to local businesses and communities.
- Speculative investor activity fuels housing market distortions.

For the CSG industry

- Challenges associated with accommodating a rapidly expanding workforce.

THE LESSONS

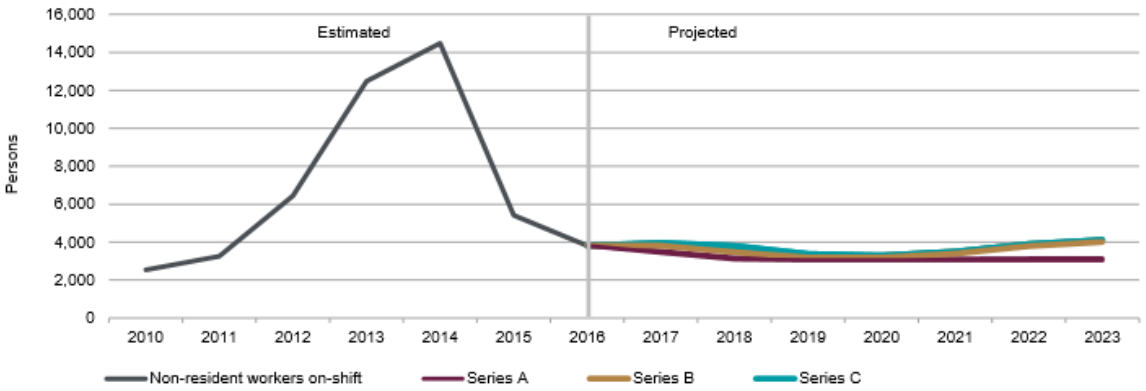
- Consider longer-term (operations phase) housing requirements rather than simply focusing on construction peaks.
- The maximum benefits from affordable housing programs are achieved if they are undertaken from the start of the planning stage.



Our peak construction workforce of 14,500 was more than twice the forecast number of 6,700 and we invested in skilling both this workforce and potential employees for non-gas industries. During this period, the Western Downs and Gladstone reported unemployment levels lower than Queensland averages. From a local content perspective, we invested an estimated $19.6 billion with Queensland-based suppliers either directly or indirectly through major contractors between 2011 and 2014.

QGC: Final Report Queensland LNG Project Social Impact Management Plan (2015)

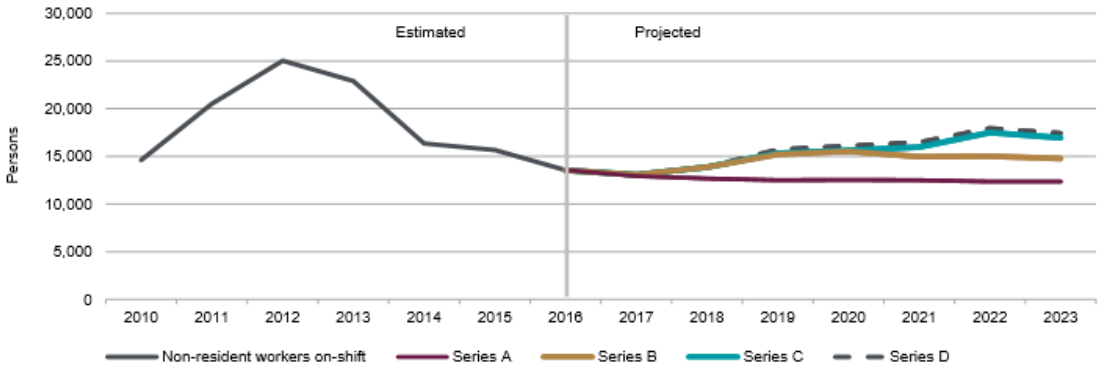
Past and Projected Non-Resident Population, Surat Basin



Source: QGSO estimates, 2010 to 2016; QGSO projections, 2017 to 2023

Source: Surat Basin non–resident population projections, 2017 to 2023, Queensland Government Statisticians' Office (2016)

Past and Projected Non-Resident Population, Bowen Basin



Source: QGSO estimates, 2010 to 2016; QGSO projections, 2017 to 2023

Source: Bowen and Galilee Basins non–resident population projections, 2017 to 2023, Queensland Government Statisticians' Office (2016)

Note: The Bowen Basin is also Queensland's leading coal producing region

News Release

13 August 2013

QGC provides affordable housing in Western Downs

Key service industry workers will live in new homes built by QGC Pty Limited and made available through a trust established by Western Downs Regional Council.

Western Downs Housing Trust, which was formed in 2012 to provide affordable rental accommodation, will lease four houses from QGC at a nominal sum for the next two years.

QGC, developer of the Queensland Curtis LNG Project, contributed A$5.7 million to the trust in 2012 and A$200,000 in 2011 for development of Western Downs Affordable Housing Strategy.

Affordable housing company Horizon Housing Company Limited will manage the properties on behalf of the housing trust.

To be eligible, prospective tenants must work in key service industries that are unrelated to the gas industry and meet other criteria.

Tenants will pay affordable rent determined by the trust, which will receive all revenue.

QGC Managing Director Derek Fisher said the houses would be used to accommodate people such as health and emergency services workers, apprentices and trainees.

"These houses are available immediately as affordable rental accommodation for people in key service industries and this benefits the whole community," Mr Fisher said.

"We're working in partnership with the council and others to minimise any impact our activities are having and it's great to see practical outcomes from our combined efforts."

Western Downs Housing Trust Director, Mayor Ray Brown, thanked QGC for donating use of the homes and its continued support of the trust.

"Western Downs Regional Council is pleased to partner with QGC to deliver four homes to the region," Mayor Brown said.

"This project represents the trust's maiden foray into the rollout of affordable housing and future residential developments throughout the region.

"This new accommodation will provide long-term affordable housing to key service workers in these communities and is a stepping stone for the Western Downs Housing Trust to continue rolling out affordable housing across the region."

Deputy Premier celebrates commencement of $20M affordable housing developments

4 Sep 2014

Gladstone Affordable Housing (GAH) today celebrated the commencement of construction of two affordable housing developments which represent an investment of approximately $20M by Gladstone's three LNG proponents to assist the area's low to middle income earners.

Deputy Premier and Minister for State Development, Infrastructure and Planning the Hon Jeff Seeney MP and Gladstone Mayor Gail Sellers were on hand to turn the first sod at the Glenlyon Street site, one of two locations currently under development. The second development is underway at Fisher Street.

The launch was also attended by community members, neighbours, representatives from Australia Pacific LNG, Santos GLNG and QGC who fully funded the $20M initiative, Member for Gladstone Liz Cunningham MP, Gladstone Regional Councillors and GAH representatives including Chairman, Professor John McAuliffe AM, and Chief Executive Officer David Cant.

Road Use and Safety

The expansion of the CSG industry into greenfield areas resulted in significant increases in traffic flows, truck movements on school bus routes, large/wide load transports on regional highways and the generation of dust and noise on unsealed roads. Many existing roads in the Surat Basin required upgrading to withstand the change in traffic type and frequency.

THE ISSUES

For landholders

- Access to properties affected by roadworks and upgrades.

For governments

- Pressure on councils to negotiate, approve and monitor road use agreements with multiple companies.
- Councils lack resources to physically manage road upgrade programs (funding available from companies, but councils may not be able to match demand).
- Many roads are upgraded to higher standards than normal giving councils significant new maintenance costs. Some roads requiring upgrade are the responsibility of the state government.

For communities & business

- Sharing roads with a substantial increase in vehicular traffic raises safety concerns about school bus routes, crossings and children.
- Significant travel delays and disruptions are caused by road network upgrades and heavy vehicle movements.

For the CSG industry

- A range of options to reduce traffic impacts include buses to transport workers between camps and work sites and between Brisbane and the Surat and Bowen Basins.
- Community safety concerns and responsibility for employee/contractor safety prompts companies to invest in, and implement, policies and tools aimed at improving safe driver behaviour (e.g. In-Vehicle Management Systems).

THE LESSONS

- Consultation on road use requirements and associated upgrades should occur early in the development process.
- Road upgrades and work schedules should be realistic and able to be resourced, during and after construction.
- Road use agreements must not only be developed but also monitored for compliance.
- Road use agreements should include safety considerations (e.g. avoiding school bus routes at key times).

Health and Emergency Services

Substantial population increases in the Surat Basin during CSG expansion placed additional pressure on the region's emergency, health and social services. Small communities reported heightened levels of stress associated with the pace of change, rising costs and the reduced availability of housing and government services, including counselling.

THE ISSUES

For landholders

- Difficulties accessing local health services (e.g. increased wait times for a GP appointment).
- CSG industry growth and changed demographics may coincide with drought, floods and other significant weather events, contributing to mental health issues and additional demand for services.

For governments

- Council community services delivery affected by population increases.
- Increased demand for health, police and other services.
- The pace of change makes monitoring and responding to demand difficult within normal government planning cycles.
- Reported difficulties engaging with CSG companies to gather information to assist with service planning.

For communities & business

- Community concerns over the potential health impacts of the coal seam gas industry, particularly from residents of the Tara Estates.

For the CSG industry

- Companies unprepared for government expectations that they must fund a range of community, health and other services.
- Difficulty in obtaining data about actual demand and the industrys direct impact on services.
- Provision of internal health services for workers and maintenance of emergency response crews to assist local emergency response capability (e.g. bushfire, road accident etc).

THE LESSONS

- Community health concerns deserve the highest priority. They should be investigated and the findings reported in a timely and transparent manner.
- The potential scale and impacts of industry development should be communicated and understood across all levels of government without expectations of industry 'picking up the tab'.
- Continued engagement, data collection and analysis helps to monitor impacts and make fact-based decisions on funding and service priorities.

"I wouldn't want to stay in a FIFO village for more than two weeks at a time; there's no amount of money that can pay for the mental challenges workers face; providing better communication avenues is a core focus of the business."

"One of the gas companies issued instructions that all of its workers in FIFO camps must be able to Skype family without interruption, without exception, 24/7, fix it, fix it, so it was just such a wonderful program for a company like that to say 'I don't care what it costs, this is about mental health."

IT Expert (September 2016)

CASE STUDY: Heart of Australia

Seventy regional Queenslanders with undiagnosed, life threatening heart conditions have received urgent medical treatment, thanks to a mobile cardiac service bringing city-level care to rural areas.

Launched in October last year with foundation partner Arrow Energy, Heart of Australia brings medical specialists to people in the bush, where these services are lacking.

The service is about to notch up 12 months of saving lives in regional and rural Queensland, and has discovered undiagnosed cardiac conditions in 70 of the 2,100 people it treated during the year.

The diagnoses led to appropriate treatment, including 12 open-heart surgeries. A range of other treatments and care was given to hundreds of other patients, all of whom had been referred to the service by concerned general practitioners.

https://www.arrowenergy.com.au/media-centre/latest-news/pages/2015/lives-saved-as-mobile-clinic-treats-rural-hearts
http://www.heartofaustralia.com/

CASE STUDY:
Surat Gas Aeromedical Service (SGAS)

Gas companies Origin, Santos, QGC and Arrow joined forces to fund the Surat Gas Aeromedical Service in 2011. The service was established to minimise the impact industry development had on local emergency medical services. The companies have contributed around $7 million to the service provided by CareFlight – one of only two fully integrated aeromedical retrieval operations in the world. Since its inception, more than 170 patients have been airlifted and received the life saving care the service provides.

https://www.arrowenergy.com.au/community/brighter-futures/rescue-services

PRESS RELEASE 27 APRIL 2011

QGC A$3.5 million boost to Gladstone Hospital

QGC Pty Limited, developer of the Queensland Curtis LNG Project, will contribute A$3.5 million towards medical services in Gladstone in a partnership with Queensland Health.

Queensland Premier Anna Bligh announced the partnership today in Gladstone with the Senior Vice President of the Queensland Curtis LNG Project, Ian Bradshaw.

QGC will fund two projects at the hospital as part of its social impact management plan.

The initiatives include A$2 million for the establishment of a renal dialysis centre at Gladstone Hospital and a A$1.5 million refurbishment of the hospital's operating theatre.

"Our project will be around for a long time and we are determined to play our part as a good corporate citizen," Mr Bradshaw said.

"Today's investment is part of our broader social impact management plan which is being rolled out from Gladstone to the gas fields to ensure our project enhances the lives of the many Queenslanders it will involve."

The money will provide for three renal dialysis units at Gladstone Hospital, patient chairs and a supporting reverse osmosis facility.

CONCLUSIONS

From traditional engineering and investment perspectives, development of the CSG industry in Queensland is a global phenomenon. In less than two decades, onshore natural gas production in Queensland grew from relative obscurity to emerge as a significant export industry. The industry is employing thousands of people, providing opportunities for training and career paths in regional Queensland and, contrary to fears of irreparable environmental damage, it is operating successfully under a world-first regulatory regime and the scrutiny of communities.

While the gas construction boom in the Surat Basin has peaked and settles into the operations and maintenance phase, the need for community collaboration and engagement continues to ensure constructive partnerships and beneficial outcomes for Queensland.

It is clear in the feedback from key stakeholders that mistakes were made in the development of the CSG industry in Queensland. At their core was a lack of effective communication. The speed of the development left some people feeling ill-equipped to negotiate effectively and created varying degrees of concern in the community.

It is critical that the GasFields Commission Queensland continues its role in communities dealing with the gas industry – by hearing concerns, facilitating and fostering relationships, sharing information and providing the tools stakeholders need to make informed decisions. This will be particularly important in new areas of development.

What the Commission has learned in discharging its responsibilities to date is unique but not unexpected in the context of contemporary interaction between industry, governments and communities. The most consistent calls are for better communications sooner and a greater disposition by the gas industry towards information-sharing and collaboration.

Many of the Commission's learnings have been addressed, or are being refined as more sophisticated and informed engagement processes evolve. The need for communication and early engagement is the common thread in a broad range of concerns, but there is no denying the golden rules for long-term shared success are:

Land access is a business to business relationship: Landholders enable resources to be developed on behalf of the community and there must be mutual knowledge of, and respect for, the businesses that are competing for access to, and use of, scarce resources such as productive land and water.

- It is critical that adequate information, referral and extension services are available to assist landholders in working and making agreements with gas companies.
- Gas infrastructure should be located so as to minimise disturbance and impact to the landholder – a well-planned layout is the key to successful relationships.

There must be a robust and trustworthy regulatory framework: Government must develop and promote a framework covering all aspects of new industry development, including tenure requirements, project approvals, land access codes and environmental management including water, health, safety and social impacts.

- Bipartisan political support is vital to provide a stable regulatory environment for industry to advance projects from concept to completion.
- Government should engage in a strategic planning exercise with industry to ensure there is a coordinated effort across the industry in development planning and the minimisation of environmental impacts.
- Government should establish baseline technical information in preparation for industry development, for example a robust groundwater model with long-term groundwater monitoring programs, legislative requirement for make good agreements, and engage landholders in the tracking of groundwater level changes in bores.
- Regulatory frameworks including legislation, policy and guidelines should be periodically reviewed as experience and confidence in potential impacts is gained.

The gas industry must understand all impacts on the community: Industry must engage early with local government to help counteract its initial community impacts and build a stronger future. Local government is central to managing issues including dust, noise, roads, traffic, privacy, security, and new calls on community infrastructure such as town water supplies, waste and sewage facilities, health and emergency services.

- Gas companies should engage communities and landholders as early as possible in the project-planning process and continue to make information available, in a form that is meaningful and relevant, as project designs and plans evolve.
- Gas companies should maximise local employment by developing a common "local business" procurement policy, standardising supplier pre-qualifications and induction processes across companies, and provide trade training opportunities for the local workforce.

Trust facts not emotion (especially good science

on geology and water): While there is a wealth of scientific research and evidence supporting the ongoing but vigilant operation of the onshore gas industry, the general public must be able to access this information. Openly and transparently sharing information through bulletins, fact sheets and technical papers is the key to building trust.

- An independent and credible entity should compile, analyse and provide access to data and information relating to the gas industry in Queensland.
- Timely, accurate and reliable information should be readily accessible through multiple channels including websites, publications, targeted engagements and published reports.

Pursue effective communications and engagement: One of the legacies of inadequate communications in the early development of the CSG industry was the breeding ground it created for fear and confusion. With this predicament likely to continue well into the future, the Commission has adopted a priority policy of stronger communication and education at all levels to demystify the gas industry and afford stakeholders the opportunity to make informed decisions.

Leverage legacy opportunities: The gas industry becomes part of the landscape and is no longer an "uninvited, short-term guest". Governments, rural landholders, industry and communities work together to implement programs to assist in adapting to change as new technologies and knowledge extend the life of most Queensland onshore gas fields well into the future. Landholders need to consider carefully how they interact and interface with the gas industry with an eye to securing long-term benefits and business objectives. Communities also have an opportunity to ensure that the gas industry becomes a positive and valuable member of their immediate circle, delivering both short and long-term benefits.

As recommended by the Scott review, a future role for the Commission as a source of trusted information and referral services is expanding to include community health and well-being issues, and facilitating engagement with health professionals and service providers.

The vision of the Commission is to support informed and self-reliant communities, based on respectful and balanced relationships between landholders, communities and the gas industry in Queensland.

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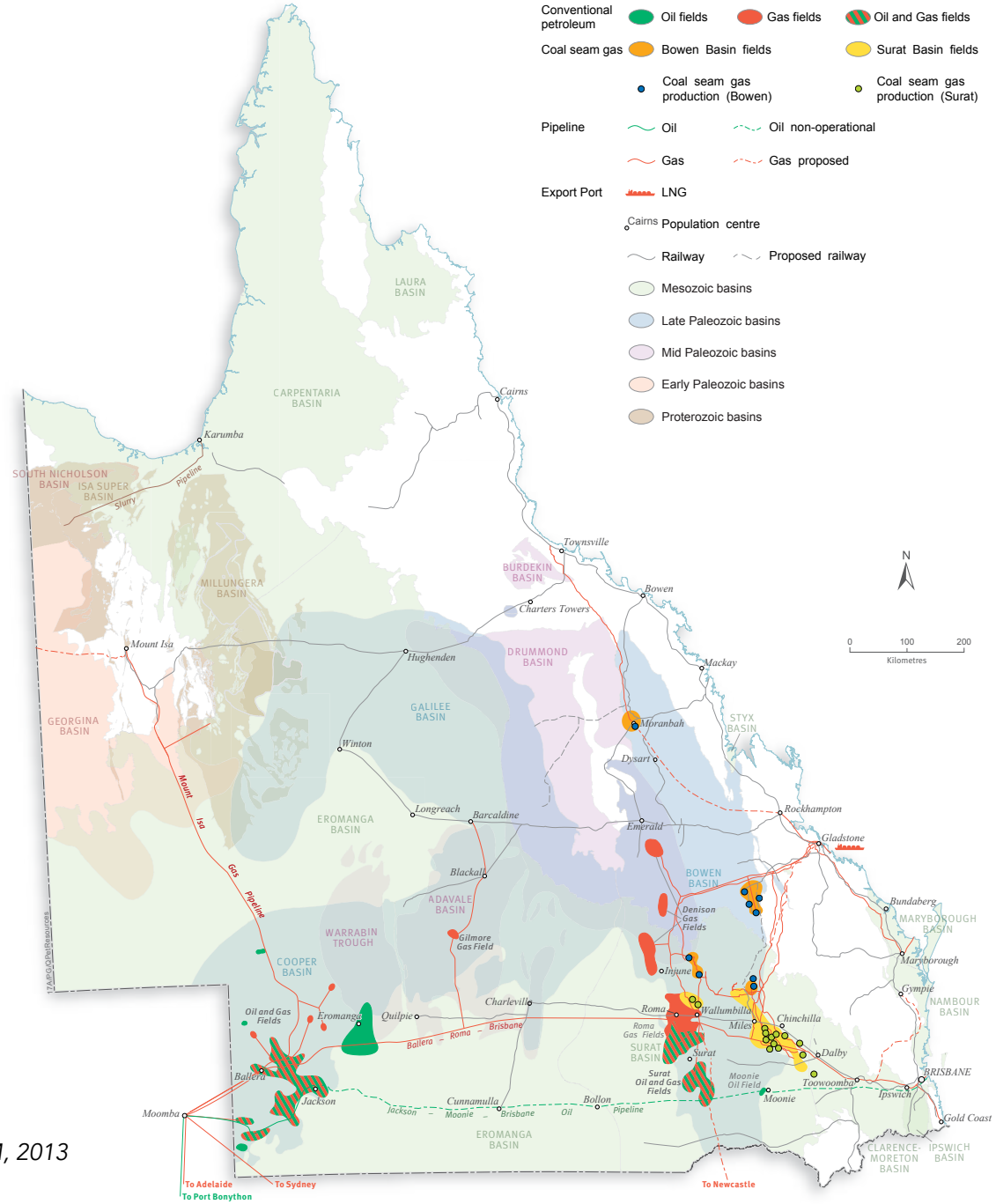
APPENDIX



Courtesy of DNRM, 2013

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