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One of the key functions of the GasFields Commission Queensland is to obtain and publish information that can assist in improving knowledge and understanding about the petroleum and gas industry, including its interactions with rural landholders and regional communities.

This snapshot reports on the current state of the petroleum and gas industry in Queensland, illustrating industry development trends, groundwater management and the economic contributions to regional communities and the state of Queensland.
Industry fast facts

Agricultural industries

- Queensland has the highest proportion of land area in Australia dedicated to agriculture with about 144 million hectares, or 83%.
- Queensland is Australia’s largest producer and exporter of beef and one of the largest producers of pork in the country.
- The major vegetable crops grown in Queensland include tomatoes, capsicums, beans, mushrooms, sweet potatoes and lettuce.
- Cotton is a valuable part of Queensland’s agriculture with major growing areas in the Darling Downs (60,000 ha), Macintyre Valley (55,000 ha), Central Highlands (19,000 ha), St George (13,000 ha) and Dirranbandi (3,000 ha).
- Agricultural industries contribute more than $10 billion to the state's economy each year.
- In 2015/16, exports of primary products comprised 19% of the state's overseas commodity exports.

Petroleum and gas industry

- Queensland’s first gas field was discovered in Roma in 1900.
- Australia’s first gas pipeline was built in 1969, connecting the Roma gas fields to Brisbane.
- Gas is a vital part of Queensland’s energy mix and is used to generate electricity as well as manufacture glass, steel, aluminium, nickel, fertiliser and plastics.
- Conventional gas is produced from reservoirs with other petroleum products such as oil.
- Coal seam gas (CSG) is produced from coal seams and is primarily made up of methane.
- The rapid growth in CSG production over the past 15 years has been driven by the development of Queensland’s liquefied natural gas (LNG) export industry.
- More than $70 billion has been invested into Queensland’s CSG to LNG industry (QRC 2018).

Working together

- The surface footprint of Queensland’s petroleum and gas industry covers 0.1% of the state’s land mass (QRC 2017).
- There has been an adjustment phase as regional communities adapt to petroleum and gas industry activity.
- The agricultural and petroleum and gas industries are an integral part of Queensland’s regional economy.
- The continued success of these industries requires best practice business-to-business relationships.
Total land area in Queensland = 173 million hectares

27.4 million hectares is under sub-surface petroleum and gas tenure

The petroleum and gas industry’s surface footprint = 0.1% of Queensland’s land mass (QRC 2017)

24.6 million hectares is under Authority to Prospect

2.8 million hectares is under Petroleum Lease

12,803 km of licensed pipelines

...as at 31 March 2018 (QSpatial 2018)
Future petroleum and gas exploration and development

- **454 km²** of tenure has been awarded in the Surat and Bowen basins for the **domestic gas market** only.
- **15,195 km²** of land has been released for tender in the Eromanga and Adavale basins to explore conventional oil and gas reserves.
- **2,236 km²** of land has been released for tender in the Surat and Bowen basins to explore conventional oil and gas reserves.

(ABS 2017)

Exploration expenditure ($M)

- conducting seismic surveys
- drilling exploration wells
- analysing core samples

Exploration expenditure in Queensland = **$4.3 billion** since 2007

$155 million exploration expenditure in 2016/17

(ABS 2017)
A landholder and gas company may enter into a Conduct and Compensation Agreement (CCA), which is a legal document negotiated and agreed upon by both parties. It generally details:

1. how authorised activities will be conducted on the property by the gas company
2. the compensation payable to the landholder for the effects of the authorised activities (compensatable effects).

Examples of compensatable effects:

- decrease in land value caused by authorised activities carried out on the property
- decrease in land value due to restrictions to land use, for example, resulting from buried pipelines
- decrease in land value caused by areas being taken up by infrastructure such as wells, aboveground pipelines, vents and access roads
- severed land that has depreciated in value or can no longer be used due to its division or separation by the location of new infrastructure or activities
- cost, damage or loss caused by:  
  - noise, dust and light from the construction of infrastructure  
  - relocation of livestock or personal property  
- indirect losses such as loss of profits, soil erosion, damages to fences or gates, biosecurity outbreaks

Compensation may be monetary or non-monetary. Examples of non-monetary compensation might include the building or repair of fences or the installation of new gates and grids.

(APPEA 2017)
There have been approximately **11,000 CSG wells** and **3,450 conventional wells** drilled in Queensland to date (DNRME 2018).

Approximately **13%** of these CSG wells and **55%** of these conventional wells have since been converted to water bores, or decommissioned and the well sites rehabilitated.

**Active Petroleum and Gas Wells in Queensland**

- Surat and southern Bowen basins (Surat CMA)
- northern Bowen Basin
- Cooper and Eromanga basins

**76%** of active wells are in the Surat and southern Bowen basins (Surat Cumulative Management Area) and **12%** are in the northern Bowen Basin.

**12%** of active wells are in the Cooper and Eromanga basins.
Queensland’s Gas Production

1,413 petajoules of gas was produced in Queensland in 2016/17

96% of gas produced in 2016/17 was from coal seams

Queensland’s Oil and Condensate Production

2.4 million barrels of oil was produced in Queensland in 2016/17

Condensate is used to produce blended petrol, cosmetics, detergents, synthetic fabrics, bitumen, plastics and rubber

Queensland’s Liquid Petroleum Gas (LPG) Production

LPG is used for barbecues, stoves and hot water
In areas of intensive petroleum and gas development, i.e. the Surat Cumulative Management Area (Surat CMA), the Office of Groundwater Impact Assessment (OGIA) is responsible for:

- regional groundwater modelling
- assessing cumulative impacts on groundwater levels
- developing an Underground Water Impact Report (UWIR)

Outside of intensive areas of development, individual petroleum and gas companies must prepare a UWIR.

The UWIR for the Surat CMA identifies where groundwater levels in aquifers, bores and springs are predicted to be affected.

There are approximately 22,500 groundwater bores within the Surat CMA.

OGIA predicts 2% of these bores will experience a groundwater level decline over the life of the petroleum and gas industry.

Gas companies are required to ‘make good’ on any groundwater level decline in private bores by providing landholders with monetary compensation or alternative water supplies.

This may include drilling new bores or supplying treated water to the affected properties.

More than 600 monitoring points have been established as part of the UWIR for the Surat CMA (OGIA 2016).

Many other groundwater monitoring points also exist:

- **Groundwater Online** is a network of 73 continuously monitored bores across the Surat CMA.
- **Groundwater Net** is a network of 292 private water bores monitored by landholders.
- Groundwater monitoring data and predictions can be viewed online via the Queensland Globe (DNRM 2018).
Estimates of groundwater take in the Surat CMA:

- **Agriculture**: Approximately 149,145 megalitres
- **Industrial**: 11,524 megalitres
- **Petroleum and Gas**: 55,000 megalitres
- **Stock and Domestic**: 25,926 megalitres
- **Town Water Supply**: 16,497 megalitres

Almost all of this water is treated to meet strict water quality standards and **beneficially used** for:
- **Agriculture**
- **Industry**
- **Managed aquifer recharge**

In 2016, groundwater take associated with petroleum and gas production was approximately **55,000 megalitres** (OGIA 2017).

More than **200,000 megalitres** of groundwater is being extracted by non-petroleum and gas users every year (OGIA 2016).

The majority of this is taken from shallow groundwater sources.
A baseline assessment collects information about the bore including water level, water quality, bore construction and associated infrastructure to benchmark bores prior to petroleum and gas development.

About **4,100** baseline assessments have been completed and reported back to OGIA.

Of the **22,500** bores within the Surat CMA, **459** are predicted to have impaired capacity due to declining groundwater levels over the life of the petroleum and gas industry.

This includes **127** bores that are predicted to have impaired capacity due to declining groundwater levels by **2019**.

**73 bores** are under **make good agreements** with landholders.

(OGIA 2017)

(OGIA 2018)

(OGIA 2016)
Groundwater take associated with petroleum and gas production is highly regulated in Queensland:

1. The *Petroleum and Gas (Production and Safety) Act 2004* and the *Petroleum Act 1923* authorise companies to take groundwater associated with the production of petroleum and gas.

2. The *Water Act 2000* imposes requirements to monitor and assess groundwater, and make good on any bores that are impaired as a result of petroleum and gas activities.

3. The *Environmental Protection Act 1994* imposes requirements on the management of groundwater taken during the production of CSG including conditions for its treatment, storage and use.

4. The *Waste Reduction and Recycling Act 2011* enables CSG water to be approved for use as a resource if it is deemed to have a beneficial use.

Groundwater audits and inspections

The Queensland Department of Natural Resources, Mines and Energy conducts audits and inspections of the petroleum and gas industry.

The Department’s auditing program reviews company standard operating procedures as well as processes in the field. The audits cover activities such as:

- groundwater sampling
- water level monitoring
- the integrity of groundwater monitoring bore construction
- associated activities.

The aim of these audits is to:

- ensure processes are followed
- establish credibility of the data collected
- ensure that work is undertaken in accordance with national and international best practice standards.

The Department also makes recommendations for improvement to industry systems and processes.
Gas accounted for 24% of Australia's total energy consumption in 2014/15.

366 million barrels of oil was consumed in Australia in 2014/15.

Oil, LPG and condensate accounted for the largest share of Australian energy consumption in 2014/15 at 38%.

Australian Gas Consumption by State/Territory 2014/15

Queensland Domestic Gas Use Jan-Mar 2017

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Queensland’s LNG Exports in 2017

Queensland exported 20.2 million tonnes of LNG in 2017. That’s 310 shiploads.

Australia has now become the 2nd largest LNG exporter in the world.

Queensland has 29% of Australia’s LNG production capacity (DIIS 2018).

Queensland exported:
- China (11,592,370 tonnes)
- South Korea (3,973,147 tonnes)
- Japan (2,731,617 tonnes)
- Singapore (648,501 tonnes)
- Malaysia (629,427 tonnes)
- India (388,735 tonnes)
- Thailand (135,739 tonnes)
- Hong Kong (71,996 tonnes)
- Philippines (63,010 tonnes)

Queensland has 29% of Australia’s LNG production capacity (DIIS 2018).
COMMUNITY SPEND

Petroleum and Gas Royalties Paid to the State

= $418 million since 2010

Petroleum and Gas Spend in Regional Queensland Communities

1,380 regional businesses directly supported by the petroleum and gas industry in 2016/17

131 regional community organisations directly supported by the petroleum and gas industry in 2016/17

$1.4B direct economic contributions to regional Queensland communities in 2016/17

Contributions to:
- regional jobs
- local business purchases
- community contributions
- local government payments

Cumulative direct expenditure ($B)

Financial year

(OSR 2018)
Direct Employment in Queensland’s Petroleum & Gas Industry

More than 4,000 people were directly employed in the petroleum and gas industry in 2016/17

<table>
<thead>
<tr>
<th>Region</th>
<th>Unemployment rate</th>
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<tbody>
<tr>
<td>Maranoa</td>
<td>3.4%</td>
</tr>
<tr>
<td>Toowoomba</td>
<td>5.3%</td>
</tr>
<tr>
<td>Western Downs</td>
<td>5.6%</td>
</tr>
<tr>
<td>Queensland average</td>
<td>6.1%</td>
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</tbody>
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Regional areas with petroleum and gas development have lower unemployment rates than the state average

(DJSB 2017)
The GasFields Commission Queensland (the Commission) is an independent statutory body established to educate, engage and inform the community about all aspects of Queensland’s petroleum and gas industry.

The Commission supports respectful and balanced relationships among rural landholders, regional communities and the petroleum and gas industry by:

• helping regional communities adapt to the introduction of petroleum and gas development
• providing tools to enable informed decision making
• facilitating connections across the petroleum and gas industry, agricultural industry, businesses, communities and government
• promoting best practice business-to-business relationships
• providing a first point of contact for anything to do with petroleum and gas in Queensland
• compiling and distributing information about the onshore petroleum and gas industry.

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