

Tight gas and oil: what to expect during production

While commercial production of tight gas and oil has not yet occurred in Queensland, exploration and appraisal programs are underway. This factsheet explains what the impacts could be during production.

What happens during production?

During the production stage, activity focuses on scaled production, long-term supply, and the processing and transport of gas associated liquid hydrocarbons (such as oil), as is the case in Queensland's Taroom Trough. This requires associated infrastructure such as pipelines, tank storage, processing facilities, possibly on-site accommodation water storage and treatment, and often powerlines. Production can continue for 10-30 years or more.

Approvals required

A Petroleum Lease (PL) from the Queensland Government is required before any gas or oil production begins. This is a separate approval from the exploration Authority to Prospect (ATP) and requires a detailed Development Plan, relevant environmental approvals, compliance with native title requirements, satisfaction of land access obligations and may require Federal government approvals. An Environmental Authority (EA) with specified conditions must be in place before a PL is granted.

What production might look like

The early production phase has the highest levels of activity, characterised by well pad construction, drilling, hydraulic fracturing and installation of associated infrastructure.



Picture: Omega Oil and Gas.

Communities might notice increased truck and vehicle movements transporting water, sand, workers and equipment, which may require road upgrades and other roadworks.

There may be temporary accommodation camps for workers and/or increased demand for local accommodation, services and contractors. Experience from coal seam gas (CSG) development demonstrates the potential economic benefits for local communities can flow through services and construction sectors during development.

Early production often requires construction of new pipelines and powerlines as well as gas processing, oil storage and water management infrastructure. Any land clearing necessary to facilitate this activity is subject to relevant approvals including cultural heritage and biodiversity protection. Once wells are completed and connected to pipelines, activity decreases and most production wells operate continuously with periodic site visits, similar to CSG wells.

Production wells

Production wells are located on cleared areas of land known as well pads. Levelling and retaining walls may be required. During drilling and fracturing, the well pad needs to be large enough to accommodate the required equipment and may be up to four hectares in area. Upon well completion, however, the well pad area can be reduced and partially rehabilitated so that all that remains are a series of well heads (sometimes called Christmas trees) approximately two metres high with only essential infrastructure.

For large scale production, underground gathering lines will connect wells to a central processing facility that removes water and impurities before gas enters transmission pipelines. Early exploration results in parts of Queensland's Taroom Trough are prospective for gas, oil and condensate. It is possible that wells may produce quantities of oil in addition to larger gas flows. Pathways for commercial production of liquids in the Taroom Trough (including separation, storage and transport) are still to be determined.

Drilling, fracturing and completion

Production wells require similar drilling operations to exploration wells over a much longer timeframe (see *Tight gas and oil: what to expect during exploration factsheet*). Fracturing is required for commercial production and is typically carried out at the time of well completion, or during a later fracturing campaign. The company must notify the Queensland Government and affected landholders of their planned activities at least 10 days before fracturing begins and then lodge a second notice within 10 days of completion outlining the actual additives and volumes used during the fracturing.

The company must then provide the Queensland Government with a more comprehensive, technical 'hydraulic fracturing activities completion report' within 6 months. Additionally, the Queensland Government has strict controls on [fracturing requirements](#).

What this means for landholders

Individual tight gas and oil wells may produce for many years. Once the drilling and completion phase finishes, day-to-day production activity is typically limited to periodic, weekly or monthly, maintenance and monitoring visits to wellsites rather than a continuous operational presence. Rig activity (workovers) may be required on site to maintain production. Drilling activities and traffic movements are most intensive during well drilling, fracturing and completion activities and reduce substantially afterwards. Strict compliance with the relevant legislation and EA conditions is required through the well's life. Noise during operations would be subject to limits set in the Environmental Authority considered appropriate or necessary by the Queensland Government.

Environmental Authorities allow gas companies to enter into alternative arrangements to manage a range of environmental nuisances (e.g. noise, light, dust). An alternative arrangement is a written agreement about the way in which a particular nuisance impact will be dealt with at a particular place. If a gas company expects their activities may result in impacts to your property, they may negotiate arrangement with you to remedy these impacts.



All lighting must be directed downward and contained to the site (Picture: Omega Oil and Gas)

Water and wastewater

Tight gas and oil production does not produce the volumes of water that CSG produces. Some water returns to the surface after fracturing (flowback water) and limited water may be recovered with the gas during production. Operators must manage wastewater under the conditions of their Environmental Authority.

Flowback water may be treated for reuse in further fracturing activities. It is captured at the wellhead and directed into engineered storage systems such as steel tanks, lined containment facilities, or purpose-built wastewater storage infrastructure, with the single objective to prevent contact with soil, surface water or groundwater.

Compensation and rights

All rights that apply during exploration continue during production (see *Tight gas and oil: what to expect during exploration* factsheet). The production CCA will include compensation for ongoing effects of infrastructure on the property, covering impacts on productivity and land use. Compensation is assessed on impacts, not on the company's production volume or revenue. CCAs commonly include in-kind provisions such as road upgrades, fencing, stock water infrastructure or similar contributions alongside financial compensation.

Monitoring and compliance

Operators are required to rigorously monitor their operations throughout the production phase to inform continuous improvement and comply with a range of approvals across government (E.g. environmental authorities). Some will invest in ongoing research using monitoring data.

Where can I find out more?

Contact Coexistence Queensland on 1300 548 021 or visit www.cqld.org.au. For the Taroom Trough, The Office of the Coordinator-General (Qld Government) is developing a [Taroom Trough Development Plan](#).

Useful resources

- [Coexistence Queensland tight gas and oil factsheet series](#)
- [Resources for landholders, Coexistence Queensland](#)
- [Queensland Government Taroom Trough Development Plan](#)
- [Understanding compensation, Coexistence Queensland](#)
- [About CCAs and MGAs, Land Access Ombudsman](#)
- [The Gas Guide](#)