

Report for the GasFields Commission Queensland

Online Spatial Information Needs of Landholders

Produced By

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1. Introduction

The GasFields Commission Queensland (GFCQ) commissioned this research project to determine what online spatial information Queensland landholders are seeking on the gas industry, the extent to which this information is available and accessible to landholders, and what changes are required to meet shortfalls in the adequacy and availability of online spatial information.

The scope and objectives for the project are as follows:

1. A description of what information is currently available online to landholders; specifically in relation to spatial information.
2. Whether landholders are able to find the information they want, including advice on the time and level of skill required to obtain and interpret the information.
3. A prioritised list of what key data landholders seek.
4. Recommendations about how the information should be presented.
5. Commentary about the impact any deficiencies in information – both spatial and any other knowledge gaps – has on co-existence of the agricultural and coal seam gas industry.
6. If changes are proposed, commentary on what benefits those changes could deliver.

2. Methodology

The data that underpins this report is based on interviews with landholders from across the Surat, Bowen and Galilee Basins and representatives of stakeholder organisations including:

- Agforce
- Queensland Farmers Federation
- Cotton Australia
- Basin Sustainability Alliance
- Central Downs Irrigators Limited
- RAPAD
- Department of Natural Resources and Mines (DNRM)
- Department of Environment and Heritage Protection (EHP)
- SantosGLNG
- Arrow Energy
- QGC
- AMEC
- Office of Groundwater Impact Assessment

In addition, further research data was obtained through testing of currently available online spatial information from government, industry and other organisation websites.

3. Description of Currently Available Online Information

Government and gas company websites collectively contain a large volume of online information on the gas industry, including various pieces of spatial information.

A summary of the main types and primary sources of spatial information currently available to landholders and other interested parties is provided in the table below.

Category of Online Spatial Information	Location/Provider
Tenure information – Petroleum and Gas tenures granted and tenure applications pending, with maps from regional and local authority scale through to lot on plan level.	<ul style="list-style-type: none"> • Integrated Resource and Tenure Maps (IRTM) and Mines Online Systems – DNRM and Queensland Government business websites
Geological and hydrogeological information – Maps depicting the location of known and potential gas reserves along with any associated water resources.	<ul style="list-style-type: none"> • IRTM System – DNRM • Surat Underground Water Impact Report – Office of Groundwater Impact Assessment - DNRM • Geological Survey of Queensland (DNRM)
Gasfield development information – Maps identifying gasfield exploration and development wells and infrastructure along with associated information.	<ul style="list-style-type: none"> • QDEX/IRTM Systems – DNRM • Company websites/systems
Environmental information – Environmental authority and location of Environmentally Sensitive Areas; water monitoring locations and associated information.	<ul style="list-style-type: none"> • DEHP Website • SantosGLNG Project website for water quality data.
Groundwater resource locations, impacts and management – Mapping of Surat Basin groundwater systems, impacted groundwater bores, and CSG produced water.	<ul style="list-style-type: none"> • Underground Water Impact Report for the Surat Cumulative Management Area – Office of Groundwater Impact Assessment • Healthy Headwaters Coal Seam Gas Water Feasibility Study - DNRM
Satellite Imagery – available online imagery, free of charge and market based	<ul style="list-style-type: none"> • Google Earth and Bing Maps – internet available but unable to be downloaded and updated as separate file. • Queensland Globe and Queensland Government Information Service (QGIS) • <i>Nearmap</i> – commercial product able to be accessed for a fee.

While the above information is available online, its access is still subject to (1) the limitations of internet download capacities available to landholders and (2) a level of system understanding and knowledge to generate some searches. Further discussion on these issues is provided later in this report.

The available spatial information is provided or available in a number of different formats. Some is displayed electronically online, while other information is provided as downloaded files, or embedded in detailed reports accessible via the web, such as the Underground Water Impact Report.

The scale of the available spatial information varies significantly as does the method of access. Some information is searchable via lot on plan description, which research indicates is the most widely known and understood search parameter for landholders; while other data is only available using other search parameters such as latitude and longitude or local authority and is not available at the property scale. For example, a property owner can determine that their property is within the Immediately Affected Area from the data contained in the Underground Water Impact Report for the Surat Cumulative Management Area and in most cases from the maps it contains, however the spatial information and maps contained in that report are generally not scalable at a detailed level to the individual property or lot on plan.

One issue with some online information is its currency. Imagery is in many cases several years old and does not show the significant gas infrastructure now in place. This renders it somewhat obsolete in terms of landholder access to the latest. Similarly, some online data has not been updated with currently available information, limiting its usefulness.

The recent release of the Queensland Globe by the Queensland Government has enhanced the online access environment for landholders. This system allows landholders to open spatial information within the Google Earth environment so that layers of spatial data can be superimposed on the available satellite imagery or aerial photography. DNRM is leading this initiative and has commenced the roll out of datasets which will include spatial data relevant to the on-shore gas industry.

Some landholder and community organisations have also provided spatial information on their websites. For example, the Basin Sustainability Alliance provides an overall map of completed wells and enables access to a file that allows landholders to display this in Google Earth and view wells in their district/locality and on their property. The well information is obtained from DNRM. The Alliance also displays reproduced spatial information such as the maps of “Planned Commencement of CSG Production” and “Planned Cessation of CSG Production” from the Underground Water Impact Report for the Surat Cumulative Management Area.

In addition to online information, some companies are now providing more detailed spatial information via hardcopy or in some cases in the form of electronic files to landholders through land access consultation processes and as part of conduct and compensation agreement negotiations.

4. Landholder and Representative Organisation Perspectives

The stakeholder data for this report was obtained through face-to-face and telephone interviews with landholders, industry and community organisations, government departments and gas companies.

A number of themes emerged from landholder and industry body feedback. These include:

- a. The availability of quality spatial information is important to landholders in understanding the industry and how their property is or may be affected by gas development. This is seen as crucial to managing both their negotiations and ongoing coexistence with gas companies. In particular, landholders wish to be able to access current, timely and specific spatial information on proposed gas activities in order to understand the potential impact (or potential opportunities such as through possible additional water availability) for their property and enterprise. They are seeking this information at the property scale and also improved access to contextual information about what is happening in their district/locality, including the extent of current gas field development; information on groundwater systems and impacts; produced water management and disposal strategies; proposed infrastructure; and government approvals and regulation.
- b. Many landholders find it difficult and time consuming to determine what information is currently available and how to access and interpret it. Existing online spatial information sources such as the Government's Industry website, DNRM's MinesOnline system and EHP's database on Environmental Authorities are accessed by landholders and provide a useful online spatial and general information resource for landholders regarding the on-shore gas industry. However, there is currently no easy to navigate single "point of truth" portal or app for landholders to readily access the available on-line spatial information on gas industry activity or proposals for their own locality or property. Landholders indicated that Agforce CSG workshops had provided them with improved understanding of the available information and how to access it.
- c. Landholders indicated that information obtained is often difficult to pull together in a consistent format. They are seeking spatial information that is integrated and clearly presented so that the respective layers of spatial information (eg: property boundary, petroleum tenure boundary, satellite image, paddock/field and farm infrastructure location, current and proposed gas infrastructure etc.) are provided at consistent, usable scales with clear legends and links to any necessary explanatory information and definitions.
- d. The need for high quality, easy to understand information about groundwater systems and impacts was a recurring theme of landholder feedback.

- e. Further to the comments made in 4a above, comments were received that many landholders feel at a disadvantage in discussions and negotiations with gas companies due to the non-availability of adequate spatial and other information about proposed gas development activity on their properties and in their district. Landholder feedback indicated a material variation in the level and quality of spatial information provided to landholders by gas companies as part of land access negotiations. However there was also feedback that some gas companies are providing good quality information and gas company representatives indicated that one of the complexities is being able to explain to landholders that field development proposals are not clear until extensive appraisal works have been completed.
- f. Due to technology and ICT infrastructure limitations in some areas, landholders encounter difficulties in viewing and downloading some available information.
- g. Landholders indicated that access to monitoring information is valuable and important. The SantosGLNG groundwater monitoring site was mentioned several times as an example.

5. Review and Analysis

The data obtained for this project indicates a strong link between the provision and availability of quality information to landholders, including spatial information, and the achievement of effective coexistence outcomes for the agricultural and gas industries. There is a view by some landholders that they are not being adequately and effectively informed, especially in the context of gas exploration and development proposals. There was also evidence of productive coexistence outcomes where the landholder had been engaged early on and provided with clear information.

There is a significant volume of spatial information currently available to landholders. Some of the available data is relatively easy to access and provides timely information at useful scales. For example, tests and feedback on DNRM's MinesOnline system indicate that it is relatively easy to use and generates timely products at some useful scales.

However, the somewhat dispersed nature and relative complexity in some cases of the currently available online spatial information and systems can make it difficult and frustrating for landowners to access and understand the information available at regional, district or property scales. There is no one site or app that allows landholders to readily identify and pull together the available information to determine whether it answers their queries eg: the extent of current and potential gas fields, the status of government approvals for those fields, the extent of infrastructure, and the impact on water resources.

In addition, currently available information is characterised by a number of other factors which make it difficult for landholders to access and interpret. These include:

- (a) Some search facilities are not easy to use without prior knowledge and background. For instance, it can require input data other than landholders would normally use eg: tenure reference numbers and/or longitude and latitude data. It can also involve an ability to navigate databases and switch on or switch off information layers to generate results.
- (b) Each online database presents the information at different scales and formats, making it difficult to integrate and interpret at the property level. For instance, property scale maps are generated at different scales to satellite images, tenure maps and other information. Multiple lot searches are not possible in some cases requiring lot-by-lot searches with separate maps generated in cases where a landholder's property comprises multiple lots.
- (c) Information generated is in some cases not linked to clear explanatory information.

Beyond improving access to currently available spatial information, the provision of additional or improved on-line information would benefit coexistence outcomes, including by assisting landholders to understand the context in which development on their property is occurring. However, some of this information at the scales sought may only be available from gas companies and may be subject to commercial considerations with access needing to be managed accordingly. To the extent this is an issue, there may be scope to enhance

the extent of information made available through the conduct and compensation agreement process on an in-confidence basis so that the landholder has the optimum available information and company commercial requirements are still met.

Landholder feedback also indicated that it is not just a matter of providing more spatial and other information, but rather information of the type sought in an easy to understand and accessible format. There was also advice that online information will not be accessed by some landholders and that the gas company to landholder consultation and negotiation process would remain a crucial means by which landholders obtain information relating to gas development on their property and in their area.

Discussions with government officers indicate that departments are seeking to improve the information environment for landholders. For example, DNRM is aiming to move tenures information into the Qld Globe (Google Earth) environment by the end of 2013, thereby allowing landholders to view such information more clearly with respect to an image of their property and locality. Feedback from landholders is that the Google Earth environment is a very useful and increasingly popular means for landholders to view information through. Accordingly, it would appear to provide an interface that could be used to facilitate easier access to spatial information on the gas industry.

When it comes to detailed spatial information on gas development works, gas companies appear to hold the most detailed and comprehensive data available. They have sophisticated GIS systems that can display highly accurate spatial information at both property and broader scales with links to other data layers and explanatory information. These systems provide maps and information used by companies in their consultations and negotiations with landholders. Beyond this, the extent to which these systems and/or the information they contain could be used to enhance online spatial information availability to landholders would be worth further exploring with the companies. At least one gas company indicated it is exploring ways to utilise digital systems with landholders, but that challenges exist including the speed and reliability of the internet and system access and security issues.

6. Findings

Following consideration of the research data and feedback obtained, the following findings have been reached.

6.1 Landholders are seeking spatial information on gas activities at both the property scale and the broader contextual scale (i.e. locality, district, field – eg: Arrow’s proposed development on the Condamine Alluvium). The property scale information assists them to enter into clear and meaningful negotiations with companies regarding the location of gas infrastructure on their property, while the contextual information allows them to be informed about the overall development in their area and enter into discussions and negotiations on a more informed basis. In particular, landholders are seeking information on the extent and timing of future gas development activities.

6.2 In terms of accessibility of the information that is currently available online, there are examples of systems that are relatively easy to access and provide timely and user friendly reports such as the Queensland Government Industry website, DNRM’s MinesOnline system and EHP’s website. However, more broadly, the research indicates several issues in accessing the available information:

- a. It is dispersed across a number of websites and there is no definitive “app” or access portal that provides a comprehensive access point for landholders to readily understand the range of information that is available with respect to their property/locality and gain ready access to it via links.
- b. Some of the websites and datasets are not easy to navigate or produce reports from and some of the reports once generated can be challenging to interpret. So while information is notionally available, it is difficult to generate and decipher in some cases.
- c. There is inconsistency between systems in terms of the scale and format at which reports are available. For instance, some data is searchable and available at lot on plan (property) scale while other information is not, and presentation formats differ such as the use of legends and symbols to represent features and the scales reports are available in.
- d. There are issues with the currency of some online spatial information and therefore their utility to landholders wanting to obtain the latest information from it.

Based on research undertaken for this report, the Google Earth Queensland Globe environment would appear to provide a user friendly means of making available spatial data on the gas industry. Further liaison with DNRM would be required to confirm the feasibility of using this system.

- 6.3 In terms of the gaps between information currently available and information sought by landholders, some of the relevant factors include:
- a. The information may exist, such as spatial representation of gas development works and confirmed development proposals, however there is currently no process or system/website that provides effective access to it.
 - b. The potential for gas production in a particular area of a petroleum lease may still be under assessment and therefore details of any field development may not yet be available or be subject to commercial considerations that may require a level of confidentiality.
 - c. The extent to which some information is either not available or not able to be represented at either very localised or property scales (for instance, spatial representation of groundwater systems).

6.4 The feedback received from landowners and stakeholders did not indicate a detailed list of prioritised datasets that landholders access or want to obtain, but rather a number of priority areas where they are seeking improvements in available information. In this context and having regard to the comments in 6.1 to 6.3 above, a suggested list of priority data sought is as follows:

- a. Future development plans by tenure holders at both district/locality and individual property levels
- b. Information on groundwater impacts and processes to address these
- c. Tenure and approvals related information.
- d. Environmental monitoring information as required of companies through Environmental Authorities and approvals
- e. Current gas related infrastructure including wells, pipelines, gathering lines, compressor stations etc and including depth and height information to assist with property management
- f. Other contextual information such as management plans and infrastructure for CSG associated water

6.5 Due to commercial considerations, there may be limitations on the extent to which some relatively specific information on proposed gas field development can be provided online. Should this be the case, there would be value in exploring how detailed information can be made available to landholders at the property scale on an in-confidence basis as part of land access negotiations.

6.6 Download capacity limitations of technology and communications infrastructure are a factor for some landholders. Information that requires significant levels of data transfer due to the level of detail (eg: imagery) and download file configuration can be difficult to access and consideration needs to be given to this in the design of any future systems.

a.

7. Recommendations

7.1 That the GasFields Commission Queensland promote the establishment of an easy to use online interface for landholders to access spatial and related information on the Queensland Gas Industry. Consistent with recent Government policy and initiatives on spatial information and based on preliminary assessment, the Queensland Globe would appear to have the type of functionality required for such an interface. Alternatively some other form of Google Earth based interface should be considered as Google Earth is relatively widely known and used.

7.2 That the GasFields Commission Queensland support and help facilitate the making available of key spatial information on the Queensland Gas Industry through the type of Google Earth based environment recommended above. The data would be drawn in the first instance from the categories and systems outlined in the table on Page 3 of this report and reflect the landholder information needs and priorities identified in section 6.4. Some of these existing systems are relatively easy to initially access but challenging for many landholders to navigate and obtain the required information from. The objective would be to build on the type of advances made through systems such as DNRM's MinesOnline initiative and DNRM's proposals to establish products such as mining and petroleum/gas tenure maps in the Queensland Globe environment.

7.3 If support is gained to proceed as recommended above, a User Group be established to provide direction for the initiative to help ensure the products provided meet landholder needs.