# ARROW ENERGY UPDATE COMMUNITY INFORMATION SESSION
# 11 JUNE 2020

**Introduction**

In April 2020, Arrow sanctioned the commencement of the first phase of its Surat Gas Project in southern Queensland, with construction set to begin later in 2020. The first phase will include drilling more than 600 wells to bring around 300 terajoules per day of gas to market over 27 years.

In place of our usual town halls in our local communities, members of the Arrow team presented an update via live webinar (an online presentation), and were available to answer questions at the end of the presentation.

These notes reflect the questions received and their answers. While the notes include some paraphrasing and summarising, every effort has been made to preserve the integrity of the discussions.

Event details:

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| Live webinar (online) | Thursday 11 June 2020<br>3.30-4.30pm | Presentation, questions and answers |

A copy of the presentation is available on the Arrow website: **www.arrowenergy.com.au**

**How to read these notes**

Questions and comments from the audience are in bold type, with the responses from Arrow staff in below. In some cases, responses have been summarised. In others, additional information is included to provide further context or explanation. This information is italicised following the answer.

If you have questions or comments about the project or these meeting notes, please contact the project team during working hours on:

Freecall: 1800 038 856
email: info@arrowenergy.com.au

**Acronyms**
CSG – coal seam gas
ATP – authority to prospect
PL – Petroleum lease
SGP – Surat Gas Project
EIS – environmental impact statement
IFL – intensively farmed land
AWP – area wide planning
CCA – conduct and compensation agreement
HDPE – high-density polyethylene
IAA – immediately affected area
WMMP – water monitoring and management plan
QGC – Queensland Gas Company
UWIR – Underground Water Impact Report
OGIA – Office of Groundwater and Impact Assessment

**Legislation**
*Petroleum and Gas Act 2004* (P&G Act)

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| **Date:** | 11/06/2020 |
| **Time:** | 3.30pm to 4.30pm |
| **Venue:** | Live Webinar |
| **Arrow Energy presenters:** | Guy Young – General Manager Surat Opportunities<br>Chris Wicks – Senior Development Planner IFL<br>Simon Gossmann – Groundwater Manager<br>Brydie Hedges – Community Engagement Manager<br>Gary Lees – Access Manager Surat<br>David Wigginton – Produced Water Manager<br>Jason King – General Manager Contracting Procurement & Logistics |
| **Facilitator:** | Leisa Elder – Vice President, External Relations and Tenure Management, Arrow Energy |

1. **I was surprised to hear that there are camps proposed with this project - can you please advise where these camps are proposed?**

   Under the first phase of development there are no new camps proposed. Arrow is looking at using existing camps within the area. There will be mobile drill camps but Arrow will not be building new camps as part of the development.

2. **Will there be people employed locally?**

   The majority of local job opportunities will arise during the construction development phase.

   Arrow has a long history of employing locally from the Dalby region for the workforce residing in the area. Additionally, there is legislation that requires Arrow to advertise positions, although some positions require particular skill sets and depend on availability.

3. **There are a number of 'black spots' across the region. Do you have any telecommunication towers proposed to be installed throughout this project? If so can you please provide locations?**

   Arrow has a number of communication towers planned however the locations are still being finalised. It is Arrow's intention to construct towers in a way that is suitable for third party providers who may want to install telecommunications equipment; however this will be subject to further planning and negotiation.

4. **Can you explain how Area Wide Planning works?**

   Area Wide Planning is how Arrow engage landholders in a development area, usually two years ahead of planned development. We try to gather all landholder constraints where infrastructure is planned and work with the landholders to minimise impacts. We will collect information about future developments and gather information on things such as overland flow so we can better tailor our development.

Arrow has worked with the IFL *(Intensively Farmed Land)* committee for the last ten years to develop and refine this process. We this it is the best way for us to minimise impacts and work with landholders most effectively.

5. **What is the regulatory regime proposed to manage the allocation of treated water by the committee?**

   If this question is in regard to regulatory water quality requirements, this will either be governed by Environmental Authority Conditions or an End of Waste Code which is the Queensland Government method of approving anything that's categorised as waste, which CSG water is, and how it can be used beneficially.

6. **Arrow, has your social impact assessment been upgraded or reassessed to address the changes that have occurred in the intervening 10 years since your original approval?**

   We have made changes to our social impact management plan as we've gone through, particularly the activities. While the impacts that we're looking to mitigate through our social investments have not substantially changed, our social investment activities have, and that's largely because we've had a decade of delivering on them. We want to ensure that what's promised can be delivered, whether it's through Arrow or through Arrow's partners.

   We also take on a lot of feedback from our communities about what's working and what's not working in the social impact management space. We have adapted some of our activities, for example, throughout the drought we changed activities to assist, equally with bush fires. Most recently with COVID, we changed some activities to assist disadvantaged children who didn't have access to either internet or computers. We adapt our plans to make sure there is value for money and that the programs deliver on what is said.

   Also, you may have seen in the media today that the four CSG companies in the Surat have announced the continuation of the LifeFlight contract, a commitment to supply aeromedical services for the next five years.

7. **How did you advertise these sessions? I only knew about them from reading a QFF e-newsletter, despite attending many of the town hall sessions and leaving my email address each time. The communication with local landholders needs to be improved.**

   We advertised in the Dalby Herald, Chinchilla News, through online papers and in two rounds of mass e-mails.

   We appreciate the feedback and if Arrow is missing landholder information we will have a look and make sure landholders are included.

   *Arrow advertised digitally via chinchillanews.com.au, dalbyherald.com.au, suratbasin.com.au and News Corp Network. Hard printed advertising was available in Dalby Herald, Chinchilla News and the Rural Weekly – South West.*

**8. Can you explain the deviated drilling process in more detail?**

With deviated wells, the top section of the well is drilled vertical and then the drilling kicks off on an angle. Generally we drill vertically through the over-lying aquifer. We have very strict requirements in terms of regulatory environmental requirements, production and performance to isolate the well from the aquifer through multiple barriers. Then the wells build up on deviation, depending on how far they are stepping out, there is an increase in the angle of deviated drilling into the coal seam, which is different to long reach wells which are used in other *geological* areas.

*Arrow does not currently use horizontal (in-seam) drilling techniques in the Surat Basin. It's more viable in the Bowen Basin, which has coal seams that are up to ten meters thick that are more regionally continuous. In the Surat, the seams are much thinner and discontinuous so our wells target multiple, smaller seams. We do use deviated bores in the Surat Basin, allowing us to cluster our wellheads in groups on single well pads to reduce our impact on farmland and farming operations. By deviating the bores as they descend, we can reach the same area of coal seam from a single surface point that would otherwise require multiple vertical wells with their own well pads. These deviated bores reach can vary in degrees from 70 – 82 degrees from the vertical depending on the geology, and go down through the thin Surat Basin coal seams rather than running inside them for any distance.*

*Arrow adheres to the strict requirements outlined in the code of practice for the construction and abandonment (seal the well and rehabilitate the land) of coal seam gas wells and petroleum wells. In Queensland, this is overseen by the Petroleum and Gas Inspectorate of the Department of Natural Resources, Mines and Energy (DNRME).*

*The well design and construction of a gas well is critical for ensuring well integrity and is therefore a staged process. It is broken into several parts in recognition of the different formations that are drilled through on the way to the target depth.*

*The expected life of a well pad from production to sealing the well and rehabilitating the land is approximately 20 years. Monitoring and maintenance is required to preserve the condition of the well and its equipment for the entirety of its useful life.*

**9. What is your projection for subsidence for Cecil Plains area**

Arrow has constructed a ground movement model as part of the Stage 1 Water Monitoring and Management Plan (WMMP), which is required as part of Commonwealth approvals for Surat Gas Project. This document is available on Arrow's website and it presents surface ground movement anticipated as the result of water extraction from the Walloon Coal Measures.

*The document is available through Arrow's website at the following link: https://www.arrowenergy.com.au/__data/assets/pdf_file/0006/29994/Arrow-Energy-Stage-1-CSG-WMMP.pdf*

**10. As far as using existing QGC infrastructure is concerned, will the company be applying for an update to their EA? How will this infrastructure sharing work?**

We don't share QGC infrastructure. Arrow has a gas sales agreement with QGC to feed gas into the system that they operate. Arrow's delivery point is at the inlet of the QGC infrastructure. How QGC manage that infrastructure and their relevant approvals is a matter for them (as the buyer).

**11. How do farmers who are not covered by tenement know that directional drilling is not trespassing under their property?**

The tenure boundary defines the gas boundary available to Arrow. It's not possible for Arrow to extend a deviated well outside of our tenure. Extending a well outside the tenure boundary would be like trying to live in your neighbour's house.

**12. If Arrow has to provide a 'make good' replacement bore into a different aquifer will they also be providing a licence to the landholder to access the water from the alternative aquifer if one is required?**

In most make good agreements that we enter into, we reach agreement where the landholder will undertake the drilling of a replacement bore (using compensation provided by Arrow).

In this event, we can provide assistance to submit the necessary form to transfer the existing allocation to a deeper formation. However, legally that would have to be submitted by the landholder given they're the owner of the bore.

**13. After yesterday's ABC story on public liability insurance being refused to farms, does Arrow have a statement on how this will impact the SGP?**

Arrow is aware of the reports that some farm insurers may be altering or denying public liability insurance coverage around third party infrastructure and activities on their properties.

Arrow is part of a group of CSG companies, government agencies and agricultural bodies who are working to investigate the veracity and extent of the situation. It's important that government agencies are involved and at this stage we don't have a formal position. We are still trying to understand the impacts and options, we don't have all the answers at this point in time.

We are aware that some farmers are negotiating new insurance policies with different insurers.

The other question that comes with this is around Arrow's insurance. For clarity, Arrow's general liability policy covers our legal liability for personal injury or property damage to a third party rising from our business activities including CSG activities on farmland.

**14. Can Arrow detail how the salt waste (crystallised brine) will be dealt with? How will it be stored?**

In Arrow's original *Environmental Impact Statement* (EIS) we described how we would be able to landfill any salt after it was crystallised and that's the basis of the approval. We've done work to look at this option and because salt is a very stable product once it forms a solid mass, that's actually a safe and secure option.

However, Arrow is still looking at other options to beneficially use salt products, so if those options materialise we would be looking at employing them. We still have a number of years before we need to start crystallising and require a final solution for salt.

*The Surat Gas Project EIS is an environmental impact assessment which covers Arrow's Surat Basin development that is underpinned by our 27+ year gas sales agreement with the Shell-operated QCLNG joint venture.*

*The EIS document identifies potential adverse and beneficial impacts; what Arrow must do to protect environmental, social and economic values; environmental management measures, and that Arrow consulted with communities and stakeholders.*

**15. Will Arrow be testing produced water for naturally occurring radioactive material?**

Arrow has previously completed consistent sampling and analysis of radionuclides in produced water. Due to the frequency of non-detections in the analysis the regularity of sampling has been extended.