ARROW ENERGY UPDATE COMMUNITY INFORMATION SESSIONS DEC 2017

Arrow Energy update
Community information session 11 – 14 December 2017

Introduction
In December 2017, Arrow Energy (Arrow) held a series of community information sessions to provide an update on Arrow’s Surat Gas Project and Gas Sales Agreement with QCLNG.

Following a formal presentation, attendees were invited to ask questions of Arrow staff members.

These notes reflect the questions asked and answers provided during the information sessions. While the notes include some paraphrasing and summarising, every effort has been made to preserve the integrity of the discussions.

Information sessions were held from 11 to 14 December 2017, and included formal presentations and question and answer sessions. Information sessions were held as follows:

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A copy of the presentation is available on the Arrow website: [www.arrowenergy.com.au](http://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 also provided. 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
OGIA – Office of Groundwater Impact Assessment
UWIR – Underground Water Impact Report
QGC – Queensland Gas Company
CCA – Conduct and Compensation Agreement
LNG – Liquefied Natural Gas
CSG – Coal seam gas
ATP – Authority to Prospect
PL – Petroleum Lease
SGP – Surat Gas Project
EIS – Environmental Impact Statement
SREIS – Supplementary Report to the Environmental Impact Statement
DNRME – Department of Natural Resources, Mines and Energy
IAA – Immediately affected area
IFL – Intensively Farmed Land

Legislation
Regional Planning Interests Act 2014 (Regional Planning Act)
Water Act 2000 (Water Act)
Petroleum and Gas Act 2004 (P&G Act)
Environmental Protection Act 1994 (EP Act)
Coal Seam Gas Water Management Policy 2012
1. **Could you explain the multi-well pads in more detail?**

   We are one of the few proponents that advocates for multi well pads. We set up four trials in the Daandine area. When developing multi-well pads, the pad is slightly larger than an average vertical well pad, but can hold up to 8 wells on one pad. Multiple deviated wells are then drilled by a drilling rig, which can drill all wells on the pad at one time. The key benefit is a reduced surface footprint, as multi-well pads eliminate the need for up to seven other pads in the area. There is also a reduced footprint for maintenance of the wells, requiring fewer vehicle movements. Challenges include different pump types. We have learned from our early pilots and our intention is to use these well pads on intensively farmed land (IFL), where geology allows.

2. **What will the impact be on the Condamine Alluvium? What will you do with the water produced?**

   In terms of the actual impact, OGIA has established it will be low. Our primary commitment is to offset the modelled Arrow impact on the Condamine Alluvium, for which we will look to utilise substitution of allocation. We are also committed to maximising beneficial use of Arrow treated water.

3. **How will contracts be awarded? Will there be a weighting toward local suppliers?**

   The development will be phased with gas ramping up at Tipton first. Activities will be ahead of gas ramp up. We award different contract types – some long some short – we will open up opportunities for local providers. Some here have already worked with Arrow, but opportunities will come with our contractors too (e.g. supplying to rig operators). Suppliers are encouraged to focus on Arrow but also focus on the Tier One contractors too.

4. **What will be the first phase for the EPC?**

   First phase will be Tipton Expansion. In 2018 we expect work to be for on-plot and facilities but also looking at contractors working on gathering and drilling – these contracts will be longer.

   Some contracts will be specific for jobs – some will be longer for multiple activities over multiple years.

   We will be completing wells and gathering over the whole project – at specific times we will be building compression stations.

5. **Could you expand on plans for the Bowen Basin?**

   With the Bowen we are undertaking appraisal, what we call de-risking, to understand the productivity of the wells. It is a more complex and technically challenging environment. We
have plans in place to continue appraisals. We continue to invest in ongoing operations in the Bowen alongside our gas sales agreements.

6. **What is the process for bringing the community on board? If we have questions where do we go?**

   We are out in the communities this week with open town halls in seven locations. We will also be running sessions early next year for those who were not able to attend this week. After that there will be ongoing engagement throughout the project. Our Area Wide Planning process is also unique. We are the only company that does this. We work through impacts on a landholder by landholder basis. The process has been running for a couple of years and works very well.

   Equally we have local people on the ground in Dalby, and 90% of our operating staff live locally. We have a Community Information Centre in Dalby and a 48 hour turnaround on questions through our information channels.

7. **Based on experience, is it cheaper or more expensive to engage local suppliers?**

   Local can be more competitive with the infrastructure already around you. Having a local presence is also important for the community, and means you have continuity in experience and people you work with. It’s a strength for us to have local suppliers. Whether or not that is cheaper, we run a more competitive bidding process to drive cost savings.

   Many local suppliers have advantages, as they’re locally based and have long term presence or contractors have had long relationships with local contractors. We have seen contractors have successful partnerships with local contracts e.g. logistics.
1. You mentioned 950 new wells; how many new landholders does that involve?

   The final numbers are subject to planning but we estimate 400-500 new CCAs over the lifecycle of the project.

2. I also signed an agreement on 1 December – a make good agreement – to which I am grateful to Arrow for. However, with the possibility of further make good agreements requiring redrills into the Hutton, I am concerned that we are accelerating a drop in this aquifer.

   Yes, it’s really important to consider the impacts of existing and future water take from the Hutton aquifer. OGIA are investigating the impacts on the Hutton aquifer. Groundwater take from the Hutton is regulated by the DNRM and is described in the GABORA water plan.

   STATEMENT - In 2005 you said there would be no impacts. In 2011 you said there that there may be but now you are saying there are potential impacts to the Hutton as well and this still concerns me.

3. You mentioned you will impact 400-500 landholders. What kind of procedures will you put in place with respect to gates and other landholder issues as these issues greatly impact the day to day business for a landholder?

   That is a very important question. The Area Wide Planning process we currently use looks at existing land use. This information is used to develop site access conditions with landholders. Contractors and Arrow staff are inducted to these conditions.

   STATEMENT – Past experience impacts future expectations. Based on past experiences Arrow has a long way to go.

4. When Arrow refers to the Condamine Alluvium, does that refer to Chinchilla or just Cecil Plains?

   We look at the Condamine Alluvium as a geological unit, not just the area around Cecil Plains.

5. Are there any new or supplementary approvals required under the existing EIS or in relation to the off-tenure activity we spoke about?

   We will require additional water approvals and environmental authorities for the off-tenure development.

   We have commenced detailed ecology studies and there will be additional environmental authorities required.
STATEMENT— I refer to the previous question regarding the Hutton aquifer - The Basin Sustainability Alliance has recently commented on the GABORA water plan and the 840 ML available for agricultural production in the Surat Basin.

6. How are Arrow’s Environmental policies implemented and audited?

We implement and monitor our Environmental policies through our operational activities. We look to rehabilitate and return the land to the same standard or better. We are working on a diverse range of land throughout our area.

7. The question I have is more in relation to Arrow’s employees and how they comply with the policies.

We only access specific areas and in addition to internal audits, we are audited by the Queensland Government.

8. As the development phases evolve, how will landholders see what is about to happen? How will the individual landholder be engaged?

We are engaging with those who will be immediately impacted, and the broader community will be kept updated so they remain aware of our activities. Individual landholders with specific questions should approach us on a case-by-case basis to discuss their concerns.

9. What will you do if a landholder wants to say no?

Our first port of call is to always have good faith negotiations with landholders - I don’t think we’ve used the practice of forcing the legislative pathway. It’s really important to us in the early stages of development to understand the landholders concerns and at this stage we’re going to actively work with landholders and understand what their concerns are.

10. There is a lot of rubbish on the roads; it would be good if Arrow could look at a campaign to promote clean roads. Council don’t do much.

We will take that on notice and look into it.

11. For those of us with QGC infrastructure, will you be bound by their CCA?

Arrow will remain the operator of our infrastructure and separate CCAs will need to be negotiated for landholders with existing QGC infrastructure.

12. I’ve heard a lot about the make good on the water situation and I’ve heard they are going to pump the water from the gas well back down the bore hole. In other words they are replacing ground water with polluted water. What are you going to do about that?

CSG water will not be used for make good as it is not a permanent alternative water source. Arrow will make good through either compensation or by drilling a new bore. New bores can be drilled above or below the Walloon coal measures. Our impacts will be on the Walloon Coal Measures and we see the other sources as potential water supplies.
1. **Stakeholders in this region have expressed concerns in relation to groundwater and biosecurity in particular. How will Arrow address this matter?**

The Area Wide Planning process is used to manage these concerns. Landholder specific requests are embedded into agreements in addition to the legislative requirements around biosecurity.
1. Is Arrow going to use the same intimidation tactics as other companies in the area? When 5-6 people show up at my door I feel like the process is out of my control.

   We prefer to work collaboratively with landholders. It’s a business partnership and we need it to work in the long term. We try to have meetings with landholders on a one on one basis, maybe two on occasion.

2. You mentioned the average life of a well is about 20 years. I’m curious about the ATP you have in this area which expired in August this year. This ATP is critical to your development plan I would think. Your PLA has sat over this area for 8 years since 2009 – this is a disgrace to Mines department who have allowed this to happen. Do you expect the department to sit idly by until 2024 when you finally plan to develop this area?

   We are indeed progressing the ATP in this area.

   We are working with DNRM regarding our staged development.

3. What if a landholder doesn’t want you on their land? My property is surrounded by gas companies and I don’t want anyone on my land. Arrow’s Girraween property is my neighbour.

   While we retain the right to use legislative pathways, we prefer to work with landholders. What is your reason for not wanting gas development on your property?

   It is my retirement property – I don’t want the disruption. The legislation indicates that I must work with companies but I don’t really care.

   In these cases we would look at avoiding your property if possible.

4. Regarding the amount of water being extracted under the joint venture; is it less than predicted in the original EIS?

   Yes

5. From what I understand, there will be fewer wells and Arrow will be re-using the same well pads in some areas (e.g. at Tipton). By 2024 I’ll probably be in a retirement village, but I’m wondering what your plans are for the water produced that goes to Kenya facility for processing? Will it be piped back to Dalby perhaps?

   Details have not been finalised, however, we have 3 areas with certain capacity for water treatment including our facilities at Daandine and Tipton, and the remainder of the water will be sent to the QGC facility at Kenya.

   Our first priority for treated water use would be to offset any Condamine Alluvium impacts.

   Second priority would be to allocate the water to beneficial uses. A beneficial use network would bring the water back to Arrow tenure. We plan to install a treated water pipeline to return water to Arrow tenure for sub-allocation to offset Condamine Alluvium impacts.
The UWIR considers impacts to the Condamine Alluvium in the Tipton / Cecil Plains area.

Volumes in the UWIR relate to total industry impacts. We will target at offsetting our component of this.

6. **Will the water be treated to a potable standard? For human consumption?**

   Not necessarily human use, but agricultural use. The treated water will be suitable for irrigation for example.

7. **What about QGC’s development plans in the area?**

   We can’t speak for QGC other than to say that they have committed to allow their infrastructure to be used.

8. **With Shell as a joint venture partner of both Arrow and QCLNG, does that mean they run the show?**

   Arrow is a standalone company owned equally by Shell and PetroChina. QCLNG is a Joint Venture; no single party has a decision authority across the collaboration deal.

9. **In your progressed development, environmental studies will be undertaken before the production stage. Does your timeline show when these activities might start in this area?**

   Environmental planning has commenced. We will now work on obtaining our environmental authorities for activities with plans for first disturbance in 2021 or 2022. Conversations with landholders will take place before this time to look at infrastructure planning. We will also look to engaging with contractors.

10. **Where are the predicted jobs expected to be?**

    Jobs will be across the project area and will include direct jobs as well as jobs through contracts and services. Jobs tend to grow ahead of time in preparation for the work ahead.

11. **STATEMENT: Basin Sustainability Alliance has concerns regarding the industry in general and the water take from the Taroom Coal Measures. Potential connectivity to other aquifers is a concern going forward. Origin have said they will be fraccing the Walloon Coal Measures zone west of here (they are also holding information sessions). Arrow has said they will not frac in this area because most zones are highly permeable – I hope this position remains the same.**

    I’d also like to make note of the rubbish on the roads in this region. How can we hope to have a tourist industry the way it is? In my opinion, Western Downs Regional Council doesn’t do enough to deal with this. Arrow could have a role to play to promote better management of this.

    Supporting the implementation of programs is definitely something we could consider.

12. **What is your live locally policy going to be?**

    The project will be phased as you’ve heard. Our preference would be for continuous staff to live in the region. There will be some increase in staff during the construction peak.

    Our Human Resources policy includes recruitment incentives to live locally.
We would look to utilise existing accommodation where it exists. In some circumstances, we need to prioritise safety and logistics e.g. distances for workers to travel to site.

13. Some of the other companies in town have very generous incentives for staff to live locally but only 3 have purchased homes in town because of lack of job security.

The majority of our permanent staff live locally and are either local or have worked for Arrow and lived locally for more than 6 years.

Certain roles come and go, like contractor roles.

14. What about existing wells in this area? There are wells that were completed 2 years ago and are just sitting there; the country is in a mess. Will the mess still be there in 10 years’ time?

You may be referring to Pilot wells in this area. In some cases these will be piped into our development. Generally this is what we do. I’d be happy to chat about specific sites with you further.
1. **What do you think is the biggest risk and biggest opportunity for the community?**

   Opportunities include employment, contracting and procurement benefits as well as community investment programs. We envisage water from our development will be available for beneficial use.

   By far the biggest risk is road travel. Mitigation includes using buses for staff transport, housing the workforce close to operations, driver training and traffic control on work sites.

   **STATEMENT** - At the last meeting of Arrow’s IFL committee, we were told that you wouldn’t be coming here until 2037 or 2043, now we are hearing that it will be sooner. At the last community session in Cecil Plains to present the Seismic work, everyone was disappointed by the map. Now you have outdone yourself. That map tells us nothing.

2. **The regional planning legislation is still out for review and all development will need to be in line with the legislation. The community will need an information program on regional planning and landholders’ rights.**

   Regional Planning is important and Arrow worked with AgForce and the Queensland Farmers Federation on the development of the legislation.

   We’re committed to our obligations under the Act and will work through development with our Area Wide Planning process.

   The map is difficult to see on screen, and detailed planning is still underway. Land liaison officers will speak with landholders and go through the Area Wide Planning process when more detail is confirmed. More detailed maps will be released once the development plans are locked in.

   **STATEMENT** from Ruth Wade, GasFields Commission: We are happy to take this matter on notice. Arrow and other companies are very aware of their obligations and the need for landholders to be informed. We are looking at a range of education tools and processes to assist with this.

3. **I can see all your water monitoring bores but only two are monitoring the Springbok aquifer. All my cattle are on Springbok bores and I’m worried it will disappear, why isn’t this being monitored more?**

   This monitoring network is specified by government, based on information provided by companies. The monitoring network presented shows the bores specified to be drilled by OGIA, where impacts would be in OGIA’s judgement. Also, the map only shows the Arrow monitoring network. There are additional monitoring bores in the Springbok installed by the three other CSG producing companies. In addition, the map shows the 36 water monitoring bores Arrow is obligated to install under the UWIR, but Arrow has also installed around 60 voluntary water monitoring bores, some of which are into the Springbok aquifer.
4. So how will you know if my bores will be depleted?

That will depend on how connected the Springbok aquifer is to the Walloon Coal Measures, which is Arrow’s target for gas extraction. The OGIA has forecast predicted impacts within the next three years on the Walloon Coal Measures and aquifers above and below, including the Springbok aquifer. They have prescribed which landholder bores Arrow must assess in further detail to better understand actual impacts.

5. The government makes you monitor your own bores. Why do I have to pay to monitor my own bores?

I’m not aware of any obligations on landholders to pay to monitor their own bores. Landholders may voluntarily undertake monitoring and provide that data to government. Arrow is obligated to provide data from its own monitoring bores, undertake detailed assessments of potentially impacted landholder bores and undertake baseline assessments of landholder bores. We can only comment on what we do. To date we have completed around 1,000 baseline bore assessments. These are important assessments which assist us in identifying if a bore is impacted.

6. What are the white areas on the map? What does that mean? Does it mean there will not be any wells there?

We are not trying to be vague; the colours are just to show the phasing of the development and give an idea of timing. It’s a guide only and we will come and speak to landholders to initiate discussions as more detail becomes available. The areas with solid colour represent well pads (vertical and multi-well pads), and the white patches are where deviated wells can be used.

7. You said you would drill 2,500 wells. Is that across the entire tenure area?

Yes, 2,500 wells across the tenure area, including deviated wells. 955 wells in the Tipton area.

8. Will the deviated wells mean fewer well pads? Does this mean less impact and less infrastructure?

The advantage of deviated wells is fewer well pads and fewer gathering lines. Well spacing is also increased (up to 2400m apart instead of 800m) so there is a reduced footprint on the land.

9. Does the seismic work you did last year inform the development?

The seismic survey did help to inform and identify areas that require further investigation, and may assist in well placement in the future.

10. When will we see something more accurate? Is that the Area Wide Planning Process that failed last time?

From our point of view the Area Wide Planning Trial did not fail and we have learnt a lot from the process. We will look to engage with landholders with Area Wide Planning around 2 years before first disturbance.

11. STATEMENT - I see your community programs and we all appreciate the work that the heart clinic and Lifeflight helicopter does – but every time I see the Brisbane Broncos I see it as you buying social licence and buttering up communities that aren’t impacted.
The Broncos partnership is not about branding – they don’t talk about gas. There is broader community benefit with this partnership as shown by the 1500 people who showed up at the recent Broncos Fan Day in Dalby and the many more who attended sporting clinics earlier in the year. Some of these may not be directly impacted landholders but they are still part of the communities where we operate. There are many community members and parents particularly who appreciate the opportunity for their children to meet and learn from the Brisbane Broncos players through school visits and junior clinics. This is something that is only delivered due to Arrow’s partnership with the Brisbane Broncos.

12. If a landholder refuses, will you use the Land Court to force access?
   Our staged development gives us plenty of time to speak to landholders well ahead of time. While we reserve the right to use legislative pathways, however, it is not our first option and our preferred course is to have good faith negotiations with landholders.

13. If you have a landholder refuse access, then they go to Land Court and you win, how does that possibly set up a good working relationship for you?
   I absolutely agree. It doesn’t set up either partner for success and that’s why it is not our preferred approach.

14. I see a dead end. How much did you sell your gas for per Peta Joule (PJ)?
   Question taken on notice.
   **Response:** Terms of Arrow’s gas sales agreement are confidential.

15. STATEMENT – Depending on the land size, this is hundreds of millions to billions worth of gas that you want access to for peanuts. I can’t see a way past this and you don’t want conflict so do the sums.
   Thank you, I appreciate these comments.

16. Is there a local contact for jobs or contracting opportunities?
   Contact should be through our local Community Information Centre (CIC).

17. STATEMENT - I have been there and it wasn’t useful. It would be great to have a C&P contact we could speak to that has more info.
   As packages are released we will provide this information to the CIC.
   We will also look to bring out supply chain representatives to our future engagements.

18. Looking at the map, is that the early tenure? Where are the tenure boundaries?
   You can see the tenure boundaries marked on the map, outside is the ATP. We are starting to mature these to PLs.

19. STATEMENT - I don’t want to give access while you reserve the right to take us to Land Court.

20. Regarding produced water, if it is sent to the QGC-operated Kenya Water Treatment Facility, can we assume it won’t come back?
We have an agreement for water to be treated at the Kenya Water Treatment Facility and are committed to bringing the treated water back to Intensively Farmed Land for beneficial use. There will be a pipeline to bring water back. Water will be used to offset any impacts to the Condamine Alluvium and into a beneficial use network, which will be laid out through the Area Wide Planning process.

21. If someone doesn’t want their bore assessed are you still obligated to enter into a make good agreement?

It is a very good idea to participate in the Baseline Assessment Program. This gives us a reference point if your bore is potentially impaired. However this is not predicted for the Condamine Alluvium. Without a baseline assessment it is more difficult to evaluate whether decline in the water level has occurred. The UWIR predicts areas of drawdown greater than the trigger level of 5m and lists bores which must be assessed in further detail. If you do not have your bore assessed it does not eliminate our make good obligations. A bore assessment is required for us to assess whether a bore has been impaired due to CSG. Until we can evaluate whether impact has occurred, we can’t finalise a make good agreement.

22. When you flare off at night you can see the light right across the sky. How much gas does flaring waste?

Flaring can occur both day and night and is more visible at night. We want the gas and have no incentive to waste gas. It is only carried out when required. Arrow has a small flare at the Meenawarra pilot location.

Flaring is required during maintenance periods.

23. Arrow has not been doing what is legally required. You are taking information off our bores that we shouldn’t have to give to you. That is our information. During the Seismic surveys, you had a permit for the road and I asked to see this permit and you couldn’t give it to me. You are not coming onto my property. It is my water, my land and why should I let you test it? If I don’t want you on my land what are you going to do about it?

If someone doesn’t want a baseline assessment completed on their bores then we will not force ourselves onto your land. But the data is a very valuable reference point. The assessments are carried out by certified third party experts who meet criteria set by the Department of Environment and Heritage Protection. Arrow has an obligation to provide the data collected to the bore owner. The owner of the bore is also obligated under the Water Act, to provide information on water bores on their land.
1. Thank you for coming out and sharing your plans. There has been a big improvement over the last 10 years. I'd like to acknowledge the beneficial use of water however this is not well understood by landholders and until it is we will continue to have difficulties.

Wherever water is produced on intensively farmed land (IFL), Arrow plans to have it treated using the off tenure QGC facility at Kenya, and then returned to Arrow for beneficial use.

2. You said you will have 955 new wells around the Tipton area. Do you know where these will be placed and when the local community will be consulted?

Development at Tipton will be phased and those with early development dates have already been consulted, but planning is still underway for the most of the wells. We will apply Area Wide Planning (AWP) to engage with additional landholders once the engineering design has been completed. We will commence looking at well spacing soon and consider surface constraints etc. We want to minimise any interference to landholders. AWP will generally commence two years prior to development.

3. Some landholders will see activity in 2019, have you started consulting with them?

We have already contacted these landholders in the Tipton area.
1. **Congratulations on the development, this project is good for Dalby. Could you clarify when the 1,000 jobs will come to Dalby?**
   The development is phased over time across our tenure. There will be peaks associated with the construction of compression facilities. The 27 year life of the project enables contracts to have a continuous work front for a sustainable period of time.

2. **How many landholders will be impacted?**
   Approximately 500 landholders may be impacted.

3. **How much of the gas will be used for export?**
   Arrow supplies gas to the domestic market. QGC have publically stated that the gas provided through the sale agreement increases available supply for both domestic and export demand.

4. **Will accommodation for the project be based in the region?**
   We look to utilising existing accommodation where it exists so long as it matches with personnel requirements. There will be a great deal of people and logistics planning.