SURAT GAS PROJECT
TODAY’S AGENDA

Welcome and introductions

Arrow Energy update

Field Development update

Surat Gas Project Environmental Impact Statement (EIS) overview

Groundwater

Agriculture and amenity
ARROW ENERGY
CURRENT OPERATIONS

• Commenced gas production in 2004
• 1100 wells – 600 producing
• Providing energy to 400,000 homes

Domestic - Surat Basin
• Tipton
• Daandine
• Kogan
• Stratheden

Domestic - Bowen Basin
• Moranbah Gas Project

Arrow LNG
• Surat Gas Project
• Bowen Gas Project
• Arrow Surat Pipeline
• Arrow Bowen Pipeline
• Arrow LNG Plant

Power supply
• Braemar 1, Braemar 2 (100%), Yabulu, Daandine, Moranbah, Swanbank
ARROW ENERGY
PROGRESS UPDATE

- Gas Sales: 100% of LNG sold
- Reserves: 8000PJ – equal to or greater than other proponents when FID was taken
- Budget: $1-Billion approved to spend in 2012
- Staffing: Large single accommodation contract in Brisbane (13 floors) signed in March. New accommodation for Moranbah and Dalby
- EIS Approvals
  - Arrow Surat Pipeline – approved in 2010
  - LNG Plant, Surat Gas Project and Bowen Pipeline out for public consultation
  - Bowen Gas Project – IAS submitted
- Land Access: 476 agreements in place; 270 underway in 2012; no cases before Land Court
- FEED readiness review underway, LNG Construction tender end 2012
### ARROW ENERGY

**EIS APPROVALS – STATUS**

<table>
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<tr>
<th>Proposed Project Timeframes</th>
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<tr>
<td><strong>2011</strong></td>
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<tr>
<td>Arrow Surat Pipeline – approved</td>
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<tr>
<td>Surat Gas Project EIS Submission</td>
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<td>Arrow Bowen Pipeline EIS Submission</td>
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<td>Gladstone LNG Plant EIS Submission</td>
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<td>BGP IAS submitted</td>
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<td>Final Investment Decision</td>
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<td>Arrow Surat Pipeline Construction</td>
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<td>Arrow Bowen Pipeline Construction</td>
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<td>LNG Plant Project Construction</td>
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<td>LNG Production</td>
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**Legend:**
- EIS Submission
- EIS consultation
- Approval decision expected (2yr approvals)
ARROW ENERGY
APPROACH TO SCL

- Strategic Cropping Land (SCL) lies over just 15% of Arrow’s total tenure
- ATP 683 has SCL over the eastern portion (Condamine Floodplain)
- This area contains a significant amount of gas reserves
- ATP 683 is the subject of best practice *tenure management & technology trials* to demonstrate co-existence
- Last week, Arrow informed 700 *properties* of its intent to relinquish those properties from the tenure, to give more certainty to the community
- Arrow previously excised the town of *Cecil Plains* from the ATP in Nov 2010
ARROW ENERGY
APPROACH TO SCL - ACCESS

- 95 agreements in place (ATP 683)
- Access to 16 black soil properties for exploration & drilling trials and water monitoring & research
- 11 agreements in negotiation
- 11 agreements to commence
- Access and safety inductions tailored to intensively farmed land
- Single contact for all landholders
- Restricted personnel access – potential electronic access;
  - i.d. permits for black soil
- Privacy provision at discretion of landholder (option to make public)
- New all-terrain vehicles to reduce impact in wet weather
ARROW ENERGY
APPROACH TO SCL – EXPLORATION

Exploration & Appraisal

- Pitless drilling trials have commenced
- SCL specific project management including dedicated rig and crew
- Infrastructure trials – pipeline and power reticulation
- Detailed feasibility assessment of Substitution of Allocation scheme
- New mobile wash down units
- No fraccing on ATP 683 (or existing Surat Gas Project area)
- Worked through Arrow Committees with landholders, Local/State Govts USQ, NGOs
Field Development

- Evaluating drilling of up to 8 wells from a single well pad to reduce footprint and associated infrastructure
- Increased well spacing (160 to 320 acres (0.8km to 1.5km))
- Flexibility in well locations
- Studying ways to reduce gathering system pipe diameter and potential for alternative construction method - plow (not trench) smaller gathering pipe to preserve soil profile
- 3 existing field development case studies with farmers on SCL (various farming practices)
Produced Water

- Arrow – 25 GL per year (750 GL total)
- CSG Industry - 125 GL per year
- Existing farmers - 124 GL per year

- GAB impact of CSG industry’s total drawdown represents 0.004% of water in the GAB (1/25,000th of 65M GL) before mitigation

- Local impacts - working with landholders to substitute their Govt licensed water allocations from GAB; plus other regional options

- First supply agreement being finalised to use 50% of current water production from Tipton

- Arrow has commenced a central research centre and farm Theten to showcase CSG water for irrigation over 370 – 1300 ha of crops

- 70 – 100 water monitoring bores planned in the Surat in 2012 as part of a $75M water research program
During concept Select, Arrow engineers are studying the best high level design for:

- Well types, well spacing and artificial lift
- Gas and water gathering flow lines to centralised facilities
- The number, approximate locations and capacity of centralised production facilities
- How to power centralised facilities and wells
- The development sequence

At the end of this stage, we will have an integrated view of how the above designs work together as a system.
We expect to have centralised gas production facilities (CGPFs) processing gas from wells.

Indicative feed areas (shown in colours opposite) are based on:

- the maximum distance gas can be drawn from wells
- good drainage characteristics, taking into account the terrain

Each CGPF has processing and compression equipment
ARROW ENERGY
QUESTIONS
SURAT GAS PROJECT
DEVELOPMENT AREAS AND TIMING

- Target area for development between 2013 and 2023:
  - ~ 2,000 wells

- Production wells:
  - ~ 15 wells in next 12 months