

**QUPEX**

8 October 2019

Richard Cottee



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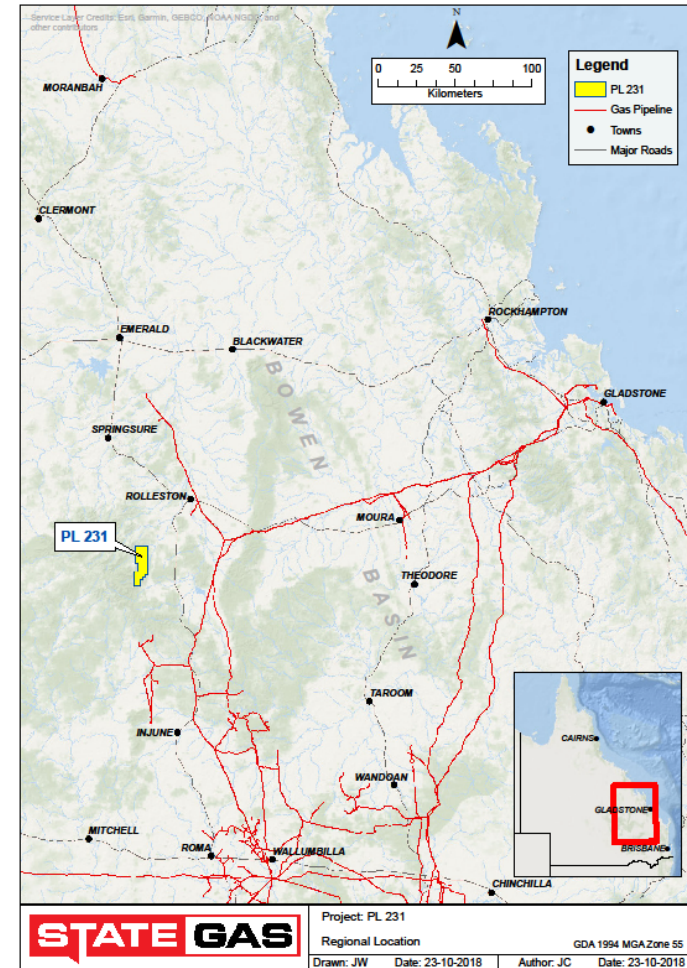


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# PL 231

- Petroleum Lease, 30 years to 14/12/2035
- ~50 km south west of Rolleston over the Reid's Dome anticline
- 181 km<sup>2</sup> covering a classic north-south dome structure
- ~ 50 km from Queensland Gas Pipeline network
- State Gas holds 100%
- Gas first discovered in 1955
- PSL held for route to market

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# PL 231 Highlights



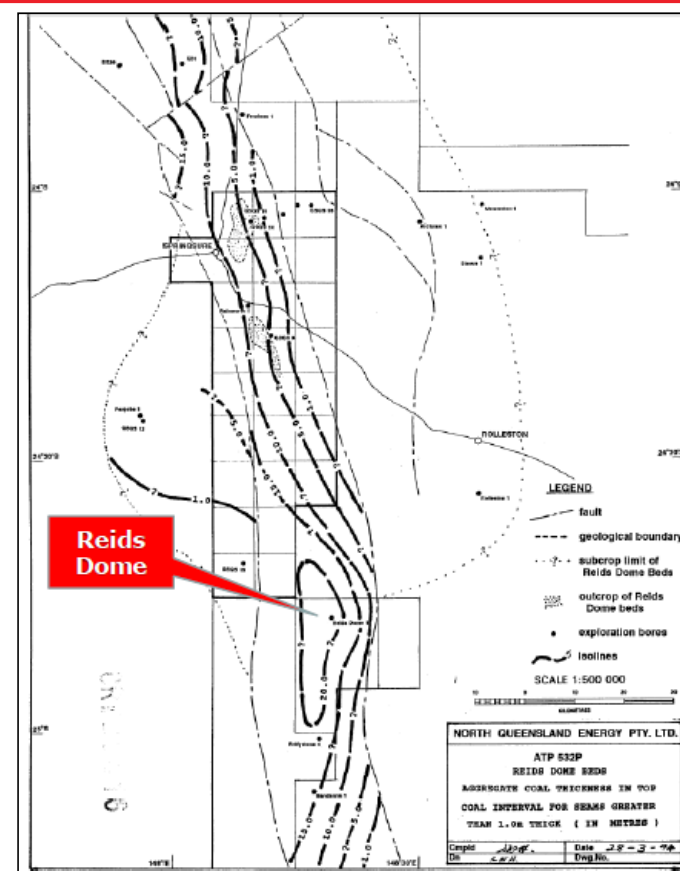
<b>PROVEN GAS FLOWS</b>	<ul style="list-style-type: none"><li>• 17 wells drilled 1955 – 2018. Gas flows from sandstone reservoirs in the Cattle Creek Formation and Reid's Dome Beds</li></ul>
<b>NEW PROVINCE - LARGE CSG OPPORTUNITY</b>	<ul style="list-style-type: none"><li>• Permian Reid's Dome coal measures are extensive throughout the entire PL-231 with ~<b>60m of net coal between 400m and 1200m</b>. They have never been evaluated for coal seam gas (CSG).</li></ul>
<b>CSG CONFIRMED IN 2018 DRILLING</b>	<ul style="list-style-type: none"><li>• Nyanda-4 the first CSG well drilled in Reid's Dome / PL231</li><li>• Nyanda-4 first modern suite of core and logs over Reid's Dome Beds</li></ul>
<b>CONVENTIONAL/ TIGHT GAS</b>	<ul style="list-style-type: none"><li>• <b>Cattle Creek Formation</b>; 3-way dip closed structural traps, over-pressured</li><li>• <b>Reid's Dome Beds</b>: ~1500m thick section with multiple prospective sandstone reservoirs in anticlinal setting. Also over-pressured.</li></ul>

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## PL 231 Reid's Dome Beds CSG Target



- 1994 North Queensland Energy study:
  - PL 231 coals relatively thick, high quality, low ash
  - 61m net coal above 1200m in Reid's Dome-1
- State Gas prelim assessment (conservatively based on 13m net coal and 8.5m m3/ton) suggests potential for significant gas reserves from CSG
- Interbedded sands with conventional gas provide further potential

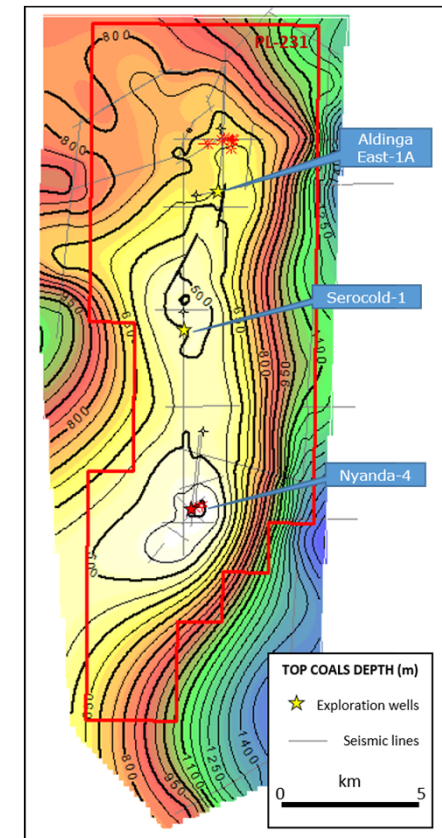


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# PL 231 Anticlinal Structural Setting



- Mapping indicates strike of NNE – SSW with trans-tensional offset in the central region
- Sericold Anticline is centred on the permit.
- Several faults are evident at surface but over-pressured gas in conventional reservoirs indicate they are sealing.
- Area of 80 – 160 km along the axis of the anticline is considered shallow enough to be prospective
- Elsewhere in the Bowen Basin, anticlines have favourable permeability characteristics for CSG



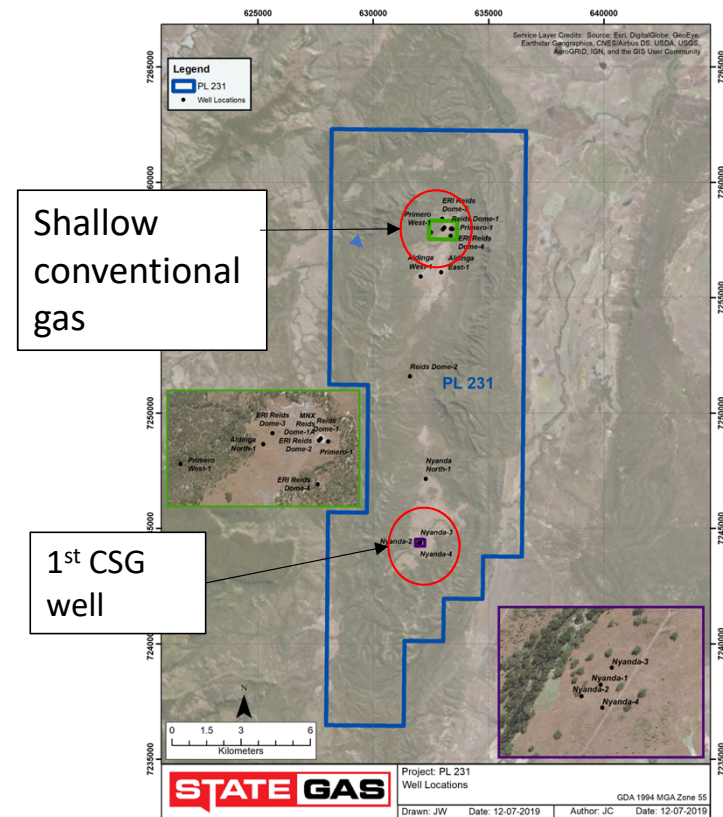
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# PL 231 Work to Date



- First wells in 1955 – flowed gas to surface
- Conventional gas confirmed in shallow Cattle Creek Formation in north
- State Gas 2018 1<sup>st</sup> CSG well in south confirmed gas presence & permeability
- established potential for a significant CSG project in this area of Bowen Basin



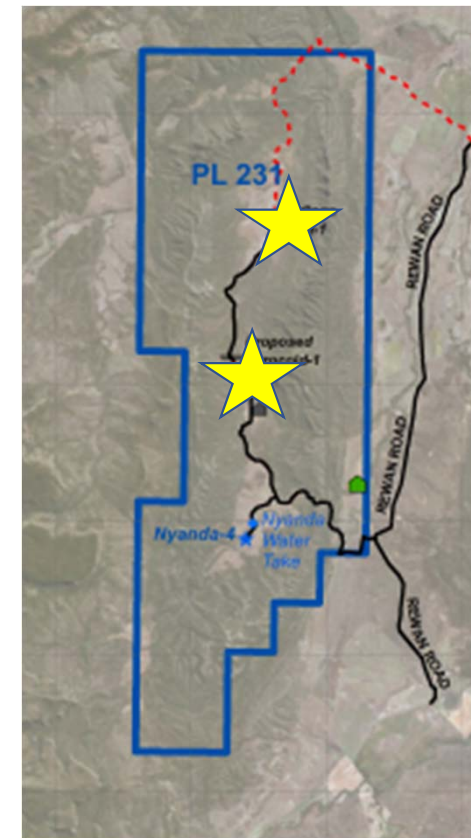
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# PL 231 Forward Program



- Phase 1 – Prove the potential
  - Seismic reprocessing (done)
  - Corehole in north & well in centre of permit to prove gas presence, coal thickness & permeability
  - Production tests to prove production
- Phase 2 - Confirm scope, permitting
  - Production pilot (s)
  - Route permitting & EA
- Phase 3 - Development





# Market Analysis

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- Traditionally Domestic Market supplied primarily from Cooper Basin ('70s) & Bass Strait (602's)
- Cooper Basin new supply barely arresting depletion
- Bass Strait arresting decline through enhanced production techniques – not new supply

## Major issues:

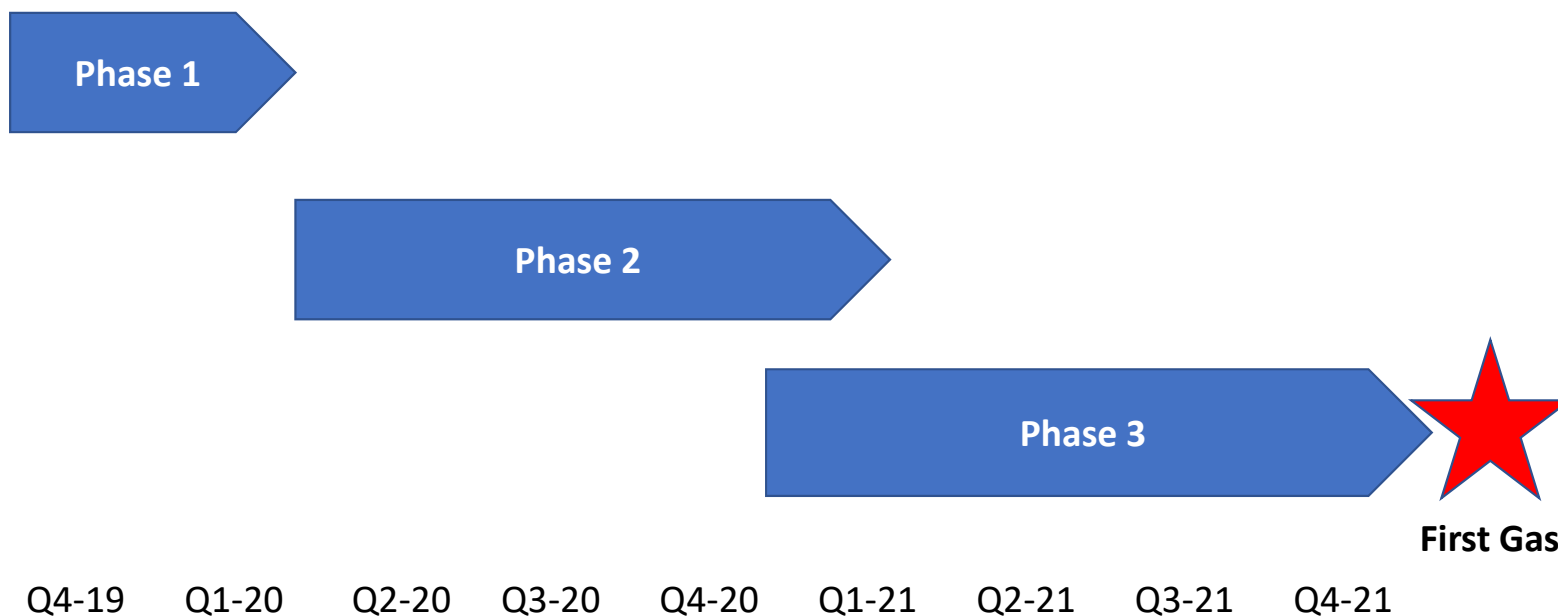
1. When Bass Strait hits the wall
2. How much role will gas play for reliable generation – highly influenced by this summer's Victorian electricity experience

# Price



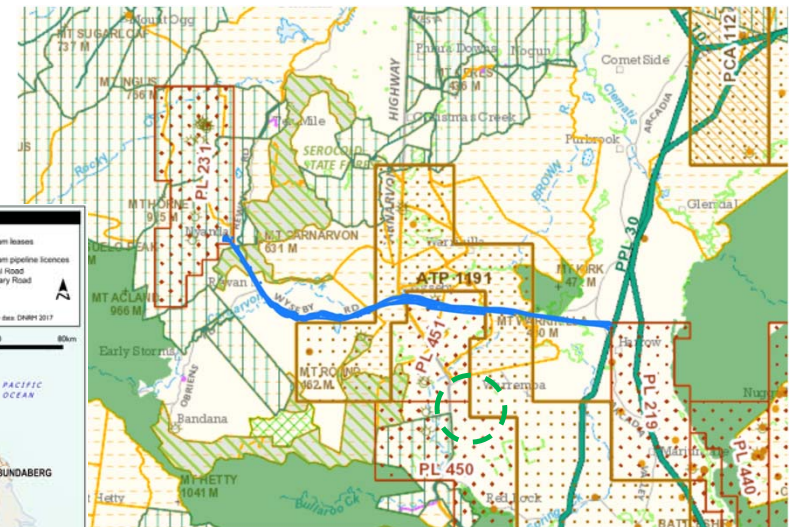
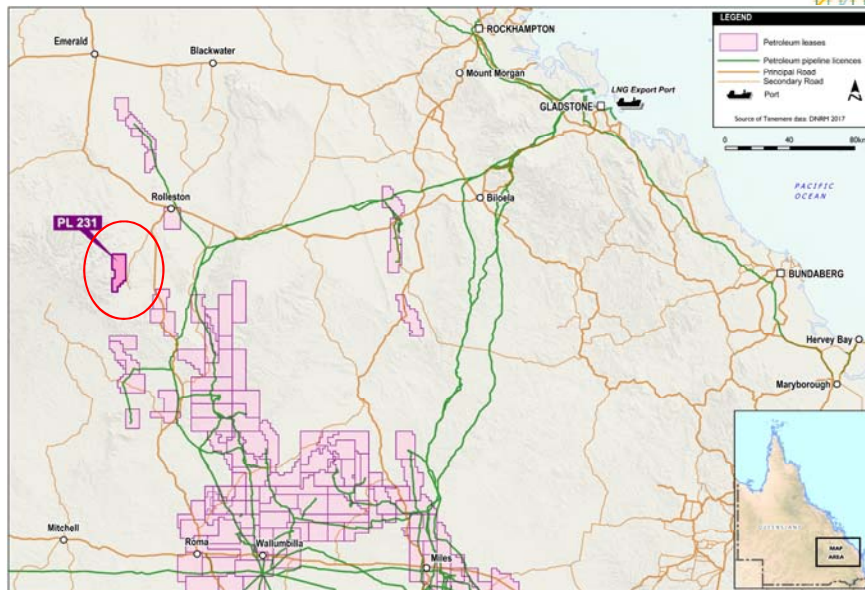
- Have always said pricing will remain in A\$8-10/GJ (2018\$) with excursions either side
- Demand appears the prime determinate
- “Demand Management” a euphemism for industrial job destruction
  - A\$10-12/GJ (2018\$, but indexed more to Henry Hub prices than inflation) will see gradual demand destruction
- New supply urgently needed to cap prices at LNG netback
- Qld has net 2 trains exposed to spot LNG pricing
- Spot LNG pricing is a bet on the stability of the Straits of Hormuz.

# Indicative Timeline



## Route to market

- Pipeline Survey Licence 2028 in place
- ~50 km to Queensland Gas Pipeline network connection options to the north-east and south-east



Possible route to market

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# Questions?



At PL 231

## Slide 13

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**LS1**

Lucy Snelling, 9/11/2018