ELIXIR ENERGY LTD

2025 | Jon Bishop (jonbishop0909@gmail.com)

EXR is the largest landholder in Queensland's Taroom Trough, with over 500knet acres. The resource potential of the Taroom is potentially significant and remains untapped. Proximity to infrastructure and market, set against a backdrop of increasing demand has prompted renewed industry focus and an uptick in appraisal activity in the area. The advancement of the Trough around EXRs tenure, could present opportunities to build the value of the company's interests using third party balance sheets and/or induce a trade sale A low capex strategy is in-place to secure EXRs permits under long-term agreements, exposing the company to the advancement of the Taroom whilst ensuring balance sheet austerity

Taroom: Boom or Doom?

The desire to source material volumes of gas to fill and extend the life of Gladstone's LNG export facilities as well as to service growing domestic demand has prompted industry to test the commerciality of the deep Early Triassic-Upper Permian sequences underlying Queensland's prolific Surat Basin. Though the petroleum potential of the Taroom Trough has been known about since the 1960s, depth and petrophysical limitations presented sufficient commercial hurdles that precluded significant further appraisal. Advances in drilling completions' technologies and improved pricing, leveraging abundant infrastructure, has reignited interest in the Taroom's nascent potential to host large Tight Gas Sand (TGS), Basin Centred Gas (BCG) and possible conventional stratigraphic accumulations. Whilst unconventional plays conjure imagery of size and scale, they also require substantial capital to define and ultimately develop the most prospective areas; a challenge for any junior E&P company.

ASX: EXR

Sector: Energy
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YouTube Channel

A$ Share Price trailing 12mnths

Mkt Cap	A$69m
Cash & receivables	A$10m
EV	A$59m
SOI	1,399.6m
Free Float	100%
52wk L/H	A$0.018/0.18

DIRECTORS
MD – Stuart Nicholls
NE Chair – Richard Cottee
NED – Anna Sloboda
NED – Stephen Kelemaen

Strategy and catalysts

EXR is the largest Taroom landholder and is targeting a low capex approach to secure its assets under Potential Commercial Agreements ('PCA'):

- PCA submitted for ATP2044 (100%) post completion of the Daydream-2 appraisal in 2024;
- Diona-1 (STO - 49% and carried) complete early DQ FY'25 (Taroom blocks ATP2077 A&B)
- Lorelle-3 (EXR – 50% operator) spud early CY'26 (ATP2056)
- 200km of 2D seismic in CY'26 (ATP2057; EXR 50% operator)

PCAs provide for a 15yr term enabling EXR to benefit from the advancement of the Trough by third parties, reducing appraisal risk and expediting potential future commercialisation of its own interests.

Taroom Highlights

Shell has secured a PCA covering its western margin Taroom interests ahead of a multi-well program with a new high powered drill rig and 800km² of high resolution 3D seismic to appraise a potential 3Tcf and 256mmbbls development

Omega Oil and Gas (OMA.ASX) has discovered and successfully tested late Permian reservoir on the eastern flank of the Taroom.

- OMA has secured PCAs over all its 257k net acre Taroom interests
- 2C Resource of 1.7Tcfe pre-recent Canyon flow-test
- Mkt cap $231m (EV c$175m)

Key Risks

The Taroom is a relatively frontier basin exposing entrants to a relatively higher degree of exploration and appraisal risk. This introduces the need for substantial capital investment with no guarantee of commercial return. More generally, small companies with no earnings, often have a high cost of capital and limited funding options.

Executive Summary

Nascent potential with significant runway

EXRs core focus is the Taroom Trough, part of the southern Bowen Basin, central, south-east Queensland. The Taroom is the western-most of two Permian depocentres underlying the Jurassic-Cretaceous Surat Basin. The resource potential of the Taroom is significant and untapped. Recent drilling and testing have unearthed Permian tight gas sand ('TGS') and possible conventional stratigraphic play fairways about the palaeoshelf, whilst the deeper trough has continued to offer tantalising datapoints suggestive of Basin Centred Gas ('BCG') type accumulations.

Taroom reinvigorated by new technology and rising demand

Whilst industry knowledge of the Taroom dates back by over 60yrs, prevailing industry technologies and the lack of an addressable market, impeded commercialisation of discoveries. However, with the new millennium came the rapid evolution of the CSG industry within the Surat Basin and the resource plays of North America, translating to material advances in extraction technologies. This has engendered an increasing willingness to test the deeper prospectivity of the underlying Bowen Basin.

Strong and growing gas demand

The economic viability of deeper unconventional resources has been favourably augmented by the industry scramble to ensure long-term feed to the three large LNG facilities in Gladstone. This has coincided with a domestic market increasingly reliant on gas to bridge baseload power generation and heating needs to a 'green' energy network. Domestic pricing and the outlook remain in contango.

Abundant infrastructure substantially lowers commercialization hurdles

The focus area is otherwise blessed by proximity to infrastructure supporting Roma Shelf production facilities as well as pipeline capacity reticulating the domestic market and ultimately servicing the large LNG export facilities.

EXR is the largest Taroom landholder

EXR has controlling interests in four permits, comprising over 2,000sqkm or 500k acres (net) covering the western and central Taroom, south of Warrumbilla. Supermajor Shell is the next largest landholder with 407k net acres.

EXR is in the heart of industry activity by large E&P

EXRs interests abut Shell's permits to the north (ATP2056), east (ATP2044) and south (ATP2057 & ATP2077B), whilst its ATP2077A block sits all-but within Shell's current "Dunk" focus area. EXR operates 50:50 JVs with Santos (STO) in ATP2056 & ATP2057.

Potential demonstrated but technical challenges remain

The Taroom has proven working petroleum systems and industry knowledge continues to evolve. However, drilling penetrations are sparse, variable quality seismic coverage is limited largely to the flanks of the trough and open file data remains scant. And though advances in completions' techniques have complemented improved technical understanding, petrophysical challenges remain precluding converting promising flow rates on test to sustainable commercial yields.

Establishing new basins requires material capex

Whilst the opportunity set is large and untapped, substantial capital is required to define, test and appraise priority targets. Beyond which – and though unconventional plays conjure imagery of size and scale – discovered potential resources then require significant capex to develop the most prospective areas: A challenge for any junior E&P company such as EXR. Therefore, EXR requires a clear but nimble strategy to balance these elements whilst preserving maximum exposure for its shareholders to what could constitute a company making asset portfolio.

"Fast-follower" approach

EXR recognises the limitations of its balance sheet (cA$10m) and its cost of capital. Industry – with greater financial capacity and resourcing – is advancing the Taroom around them. Successful execution of a low capex work program over the next 12-18mnths should secure its tenure under 15yr terms. EXR interests are then left well positioned to enjoy uplift in the value of its landholding with successful advancement of the Taroom. And ultimately, benefit from the evolution of industry's knowledge of the trough to target the most prospective plays with the correct technologies.

Land bank affords significant optionality

As the North American unconventional revolution has shown, large land positions afford the potential to coincide with the sweet spots of resource plays but in the in the early 'land-rush', represent substantial currency by which capital constrained landholders can expose themselves to the value uplift via appraisal and development.

Key Assets

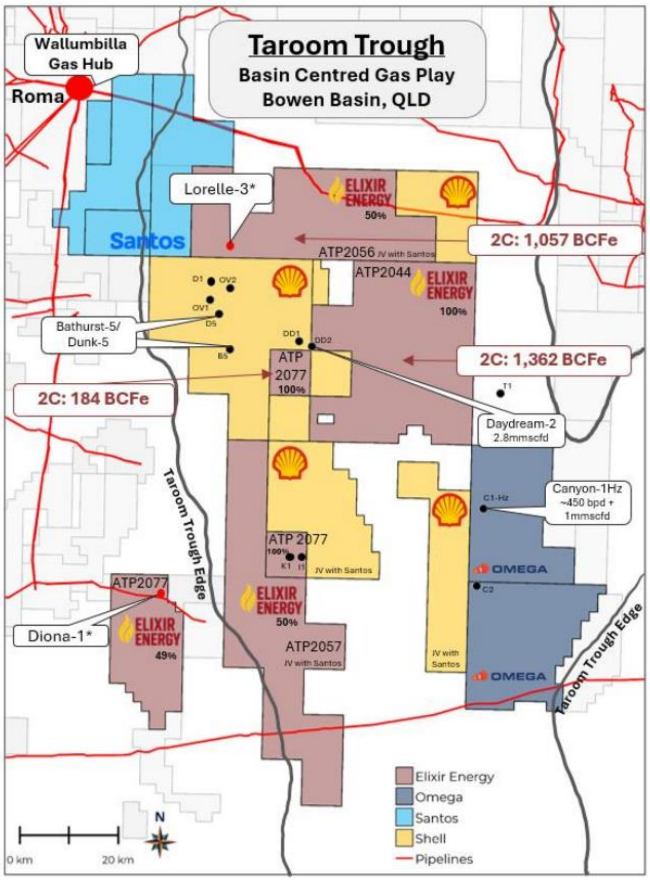


Figure 1: EXRs current landholding in the Taroom Trough. Source: Elixir Energy Ltd

EXRs core focus is the Taroom Trough, part of the southern Bowen Basin, central, south-east Queensland. It is the western-most of two Permian depocentres underlying the Jurassic-Cretaceous Surat Basin.

The company has the largest net permit interest covering the Taroom, boasting an operated interest in over 2,000sq km or over 500k net acres.

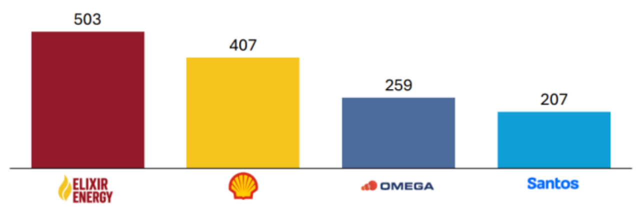


Figure 2: Net acreage by Taroom participant (000s acres). Source: Elixir Energy Ltd

The resource potential of the Taroom is significant and untapped. Recent drilling and testing have unearthed Permian TGS and possible conventional stratigraphic play fairways about the palaeoshelf, whilst the deeper trough has continued to offer tantalising datapoints supportive of BCG type accumulations.

Appendix 1 presents a detailed review of historical industry activity and literature concerning the Taroom Trough and the evolving classification of the play types encountered to date.

Contingent resources

EXR has amassed over 3Tcfe of net (post successful STO farm-in) 2C Resources, of which 2.6Tcfe is attributable to unconventional TGS/BCG play-types and the balance to deep dry coals. The company's current independently certified resources are summarised below:

Taroom Trough BCG Play										
		Gas (BCF)			Condensate (mmbbls)			Total Gas Equivalent (BCFe)		
	Working Interest	1C	2C	3C	1C	2C	3C	1C	2C	3C
ATP 2044	100%	405	1,297	4,290	3	11	36	423	1,362	4,507
ATP 2077	100%	68	173	439	1	2	5	72	184	471
ATP 2056	50%	442	994	2,146	5	11	23	472	1,057	2,284
Total		**915**	**2,464**	**6,875**	**9**	**23**	**64**	**967**	**2,603**	**7,262**

Taroom Trough Deep Dry Coals Play										
		Gas (BCF)			Condensate (mmbbls)			Total Gas Equivalent (BCFe)		
	Working Interest	1C	2C	3C	1C	2C	3C	1C	2C	3C
ATP 2044	100%	33	216	1,030	-	-	-	33	216	1,030
ATP 2077	100%	5	29	105	-	-	-	5	29	105
ATP 2056	50%	37	157	517	-	-	-	37	157	517
Total		**75**	**402**	**1,652**	**-**	**-**	**-**	**75**	**402**	**1,652**

Table 1: EXR current independently certified Resource estimates. Source: Elixir Energy Ltd

Peer Analysis

Relative valuations: EXR screens as inexpensive…

Presented in the table below are the relevant small to midcap ASX listed gas producer/developers and explorers ranked by EV. EXR and OMA as Taroom participants are highlighted in blue:

Company	ASX	Net cash/(debt)	Enterprise Value A$m	Reserves (Pje) 2P	Resources (Pje) 2C	Reserves (Pje) 2P+2C	2P EV / Gje	2P+2C EV / Gje
Beach Energy	*BPT*	*368*	*3048*	*1189*	*1050*	*2239*	*2.56*	*1.36*
Amplitude Energy	*AEL*	*20*	*798*	*201*	*294*	*495*	*3.97*	*1.61*
Tamboran Energy	TBN	-138	448		2100	2100	na	0.21
Beetaloo Energy	BTL	-7	351		1927	1927	na	0.18
Strike Energy	*STX*	*-55*	*303*	*295*	*375*	*670*	*1.03*	*0.45*
Omega Oil & Gas	OMA	-55	175		1914	1914	na	0.09
Comet Ridge	COI	-4	142	195	211	406	0.73	0.35
Conrad Energy	CRD	-7	139		349	349	na	0.40
QPM Energy	QPM	-9	105	318	269	587	0.33	0.18
Canarvon	CVN	-90	83		285	285	na	0.29
Elixir Energy	**EXR**	**-10**	**53**		**3005**	**3005**	**na**	**0.02**
Central Petroleum	CTP	-27	20	73	52	125	0.27	0.16
State Gas	GAS	-1	14		534	534	na	0.03
Vintage VEN	*VEN*	*7*	*13.3*	*52*	*17*	*69*	*0.26*	*0.19*
TMK Energy	TMK	-2	7.2		858	858	na	0.01
Blue Energy	BLU	-3	7	91	1612	1703	0.08	0.00
						Average	**1.15**	**0.35**
						Producer	*1.62*	*0.76*
						Undeveloped	**0.35**	**0.16**

Table 2: ASX listed small to midcap gas producer-developers and explorers, Sep 2025. Source: Company reports; ASX.com

…but this is a blunt metric

Whilst EV:resource/reserve metrics can be directionally instructive in terms of valuation markers, they are blunt instruments, ignoring appraisal maturity, location, development capital/intensity amongst other elements critical in determining economic viability.

Volumetric estimates and the underlying methodology for unconventional versus to conventional resources are also very different, accounting for the very large volumes but relatively meagre multiples applied by the market, certainly in the exploration and appraisal phase.

And of unconventional resource plays, further differentiation must be made between source rock (eg shale) and tight reservoir plays (eg TGS). *The BCG concept somewhat bridges the two in this author's view (refer to more detail on BCG vs TGS in App. 1).*

Omega Oil and Gas the yardstick

Relativity of operators in the same plays in the same basin is therefore the clearest marker of relative valuation. **OMA has gone a long way in defining a potential material sized TGS (with high associated liquids) accumulation in the ?Late Permian aged and informally named 'Canyon Sandstone'.** Canyon-1 and 2 are 15km apart and exhibit similar pressure gradients (+0.7psi/ft in the primary Canyon Sandstone).

Successful horizontal drilling and subsequent testing has defined a highly over-pressured tight sand reservoir yielding +60% light oil cut on test and at encouraging flow rates. OMA sees stacked late Permian potential (yet to be tested) but at least a unconventional style development pathway akin to North American shale plays.

OMA enterprise value 4x EXR

The work undertaken has importantly resulted in:

1. PCAs being secured over both of these licenses (Figure 1).
2. 2C Resource of 1.7Tcfe pre-recent Canyon flow-test
3. Independently engineered estimate recovery per well of 1mmbboe on full-field development comprising several 100 wells
4. Mkt cap $231m (EV c$175m) after successfully sourcing $46m in new equity capital

Strategy

"EXR seeks to be a strategic 'fast follower', leveraging industry technological advances and investment within the play(s) to expedite the progress of the company's interests. EXR has articulated a three-phase strategy to unlock maximum value from its Taroom Trough interests, with satisfaction of each phase the basis for the Board to advance to the subsequent phase."

1. ***Secure the assets*** — Ensure long-term retention over 100% of EXR Taroom Trough acreage:
   - Maintain a meaningful exposure to all commercialization developments within the basin
   - Balanced with a manageable capital expenditure exposure

2. ***Prove commerciality*** — Proof of concept and define commercialization pathway(s) for any or all of the conventional and unconventional opportunities within the company's tenure:
   - The Company aims to commence gas production and covert over 150Bcf of 2C Resources to 2P by end CY'27

3. ***Build sustainability*** — Establish small-scale development and initial cashflows. Explore opportunities to initiate and scale commercialization developments with partners and/or other participants in the area:
   - Assess each investment phase against the company's prevailing cost of capital
   - Minimise shareholder dilution

Progress to date

1. ***Daydream-2*** — The company successfully drilled the Daydream-2 well in late 2023, recording gas to surface before stimulation. The well was drilled down-dip of the Daydream-1 (drilled by QGC/Shell in 2011) location (Figure 1). Completion and testing in 2024, demonstrated encouraging flow rates (up to 2,600mscf/d peak and 1,000mscf/d stabilized) before downhole complications (water/condensate banking offered as a possible cause with the release) prompted shut in.

   The work completed formed the basis for the PCA application submitted covering the entire ATP2044 license.

2. ***ATP2056 & ATP2057 farm-in*** — February 2025 saw EXR successfully enter JV agreements with Santos (STO) for STOs existing 100% operated ATP 2056 and ATP 2057 licenses (Figure 1). Two separate agreements govern EXR earning 50% working interests (WI) and operatorship of ATP 2056 and ATP 2057.

   EXR will earn its interests by funding the drilling of a vertical well to 3,100m TD in ATP2056 and acquiring 200km of 2D seismic in ATP 2057 (likely mid-2026).

   Drilling applications have been submitted for the Lorelle-3 well in ATP2056, located proximal to Shell's current Dunk-Tinawon focus area (Figure 1). **Lorelle-3 is likely to be drilled in early 2026.**

   <u>The work programs also serve to satisfy the existing exploration commitments on each license and should provide basis to submit applications for PCAs</u>. Operatorship will revert to STO thereafter.

3. ***Diona-1 conventional Jurassic test*** — EXR successfully farmed-down its interests in ATP2077 sub-block 'C' to X-State Energy (XST.ASX). EXR will retain 49% of sub-block ' C' in exchange for XST carrying EXR for the drilling and testing the Diona-1 well.

Diona-1 is a conventional test of Middle Triassic Showgrounds and Late Permian Wallabella and Upper Tinawon sandstones. The well is a conventional 4 way dip closure mapped on close spaced 2D seismic. .

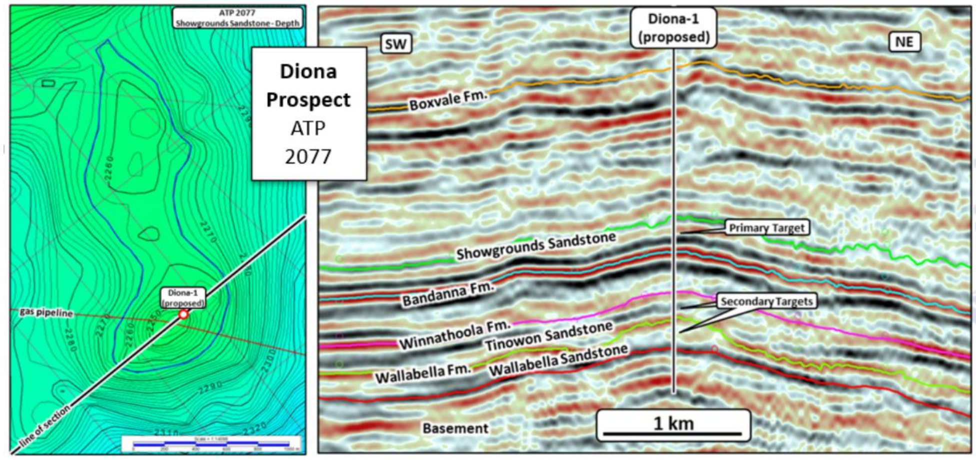


Figure 3: Top Showgrounds closure defining the Diona accumulation (L), 2D seismic line through the crest of the structure ® Source: Elixir Energy Ltd

Diona-1 carries a 55% chance of success and is expected be completed in the DQ of FY'26. The total mean unrisked prospective resource is 12.5Bcfe cumulative over the three target reservoirs (EXR – 49%).

Regardless of the outcome of the well, the sub-block is prospective for other primary Showgrounds and Late Permian conventional targets. The Showgrounds Formation hosts several commercial accumulations on the Roma Shelf.

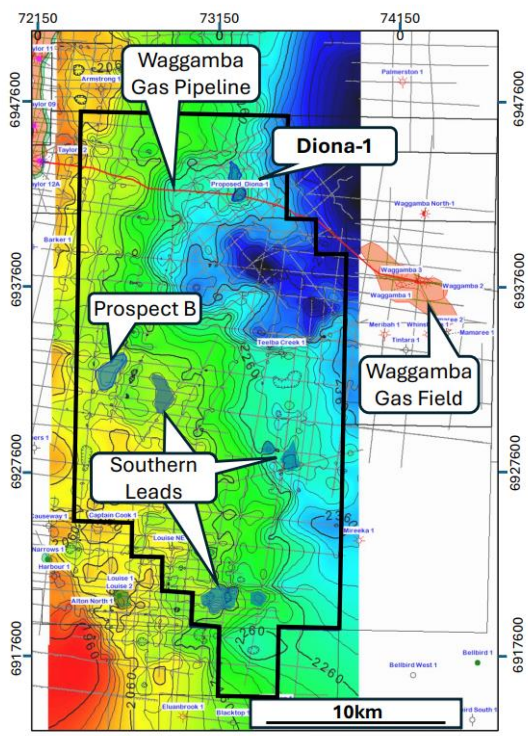


Figure 4: Top Showgrounds depth map over the ATP2077 sub-block 'C' highlighting Diona-1 location and other mapped leads and prospects Source: Elixir Energy Ltd

Whilst sub-block 'C' sits outside of the Taroom Trough, <u>the Diona-1 well will satisfy work commitments for ATP2077 inclusive of sub-blocks 'A' and 'B'; both of which are located within the Taroom. EXR retains 100% of these sub-blocks.</u>

It is understood that satisfaction of the work program provides the basis for EXR to submit a PCA application covering ATP2077 in its entirety.

Catalysts

1. Award of the PCA submitted for ATP2044 (100%) post completion of the Daydream-2 appraisal in 2024

2. Diona-1 (STO - 49% and carried) complete early DQ FY'25 (Taroom Blocks ATP2077 A&B)

3. Lorelle-3 (EXR – 50% operator) spud early CY'26 (ATP2056)

4. Acquisition of 200km of 2D seismic (ATP2057; EXR 50% operator) in CY'26, will build a better image of the prospectivity of the block

5. Submission of applications and subsequent award of PCAs for ATP2077 A&B; ATP2056 and ATP2057 post completion of the current work program (company targeting 2027)

6. *Possible re-rate per OMA as the junior benchmark in the Taroom. Like EXRs successful Daydream-2 test, OMA has discovered and successfully tested the Canyon Sandstone. Combined with award of PCAs for all of its 257k net acre Taroom interests, OMA now enjoys an EV that is four-fold that of EXR.*

7. Activity in the Taroom by third parties noting **Shell's multi-well drill program using a new, high powered rig and acquisition of 800km^2 of high resolution 3D seismic, to appraise a potential 3Tcf and 256mmbbls development** The evolution of the potential stratigraphy 'Dunk-Tinawon' sand play (Figure 5), should have positive bearing on the perceived value of EXR's neighbouring permits given the proximity of the Daydream discoveries and Lorelle-3 appraisal well (Figure 1):

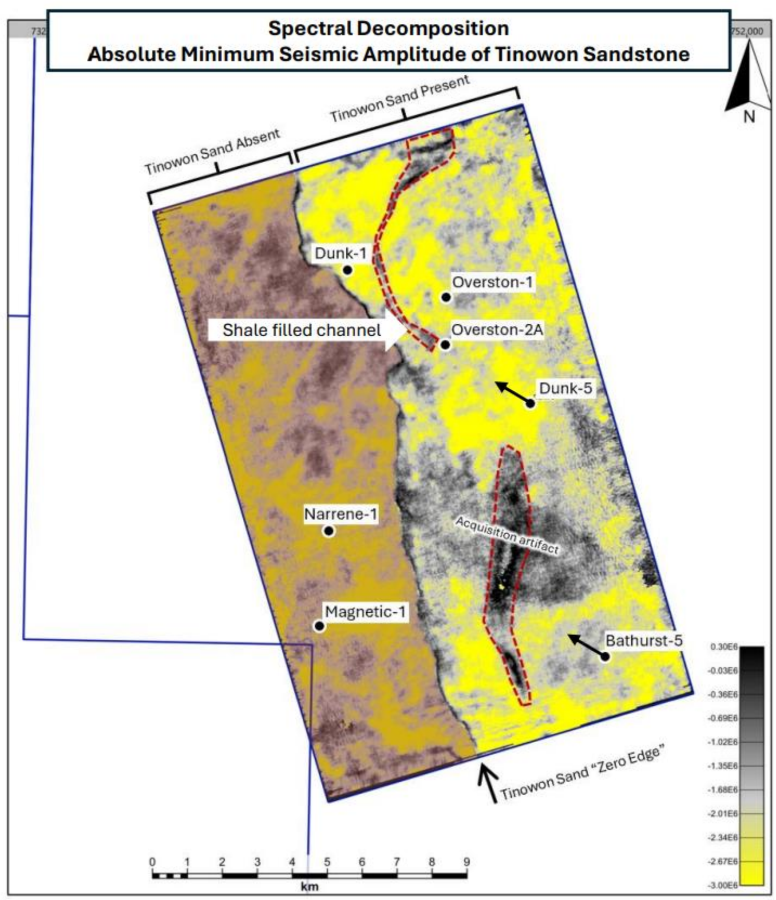


Figure 5: Spectral decomposition at the Tinawon Sandstone interval within Shell's Overton 3D seismic volume. (Source: EXR)

8. Outcomes of future permit awards, noting Beach Energy (BPT.ASX) has recently formed a technical partnership with OMA and has been identified by the press to be participating in current Taroom gazettal rounds

9. Possible land related transactions (farm-ins, trade-sales) should the Taroom largely be permitted and the basin otherwise maintains positive momentum in terms of its appraisal.

Concluding Statements

Oil and gas have consistently been recovered from the southern Taroom Trough since 1960. **However, the Taroom is an untapped resource due to unique challenges relating to reservoir depth and petrophysical characteristics.**

Supportive demand and resulting price outlooks, combined with improved production techniques, paints the Taroom as a basin that offers the scale to attract large E&P interest. **Industry estimates of generated and retained volumes exceed 52.2mmbbls and 14.9 TCF (Cooper et al, 2023.),** which contextualises:

- **EXRs current 2C Resource** estimate for its Permian aged unconventional reservoirs net of the Fractured Thermally Mature Coals) is **2.6Tcfe**
- **Shell's** PCA application considers recoverable estimates of **3.0Tcf and 252mmboe** NGLs and condensate covering just the Dunk-Overston area within ATP645
- **OMA** has booked a 2C estimate of **1.73Tcf, likely pending a material change** based upon the oil yield from the Canyon-1H test and the Schlumberger full-field development well EUR estimates

As a blank canvas, the **Taroom has a number of identifiable analogues: Montney; Piceance; San Juan that can paint the size and scalability picture**

- Optionality remains - Vertical development, horizontal development, stacked development
- Conventionally unconventional plays on the flanks of the Trough (Dunk-Overston; Cabawin; Canyon; Daydream)
- High value production streams due to associated NGLs and even light oil

Commercialisation of the Trough's potential has momentum:

- Over 1.4Tcf per annum demand from the three LNG export terminals is increasingly competing for supply as domestic demand grows on account of the transition away from coal fired electricity generation
- Due to over two decades of CSG activity, the Taroom is blessed with abundant gathering and export pipeline and processing infrastructure
- Gas pricing has experienced and is forecast to continue to experience upward pressure as a consequence of the demand growth and lack of material new supply. This has rightly been at the forefront of EXRs recent pitches to the market.

EXR is largest holder in the Taroom (2,000km2 or 500k net acres is significant in North American terms) .and retains operatorship over the majority of its acreage post completion of the current work program. Operatorship allows EXR to drive its own strategy and in the interests of EXR shareholders.

The 'fast-follower' strategy as outlined represents a sensible plan in place that should secure all licenses via PCAs for 15yrs.:

- Daydream-2 has enabled a PCA to be submitted to retain ATP2044;
- Diona-1 will enable a PCA application to cover all of ATP2077 - *This author views that the Diona-1 well represents an asymmetric reward-risk solution to securing tenure apparently in the heart of the Taroom but one that might yield a near term conventional success and (low risk) commercialisation opportunity;*
- Lorelle-3 facilitates PCA application to retain ATP2056; and

- New seismic to be acquired over ATP2057 is sufficient basis to submit a PCA for that license.

The long duration tenure should allow EXR to benefit from advancements in the basin without the need to commit to significant exploration and appraisal capex and associated risks. Therefore, the strategy inherently echoes what the technical review (Appendix 1) has concluded:

- *The understanding of the Taroom is limited; a product of sparse well penetrations into the Permian and poor coverage by variable quality seismic.*
- *Whilst BCG, TGS and Fractured Thermally Mature Coals have all been cited to represent the play potential of the Taroom, data gathered to date is limited and inconclusive, with TGS thus far shown to be dominant play type.*
- *The broadly unconventional nature of the prospectivity of the Taroom comes with the added complexity that the target horizons are reservoirs rather than the source (per US shale plays). This means relatively higher technical risk related to distribution and heterogeneity.*
- *Petrophysical data gather from the modern Late Permian tests has provided wide variations in terms of pressure gradients, phase and poroperm. This has to date presented significant challenges to completion design and testing.*

The trade-off is that EXR will be beholden to the success and failure of others until such time it has the financial capacity to advance on its own terms.

Additionally, should the Taroom mature into a new commercially viable province, **EXRs sizeable asset base offers possible commercialization opportunities and/or the means to expose the company directly to value accretive appraisal and development via farmdown/trade-sale.** *This is critical in the context of EXRs current limited financial capacity.*

Other Information and Key Risks

Balance Sheet	Jun 30, c$10.4m in cash and equivalents (R&D)
SOI	1,400m
Free-Float	100%
Board & Management	RICHARD COTTEE *Non-Executive Chairman (since April 2019)* Legally trained with 32yrs oil and gas industry experience. Mr Cottee was the Managing Director of coal seam gas (CSG) focused Queensland Gas Company (QGC), overseeing its growth from explorer to acquisition by BG Group (now Shell) for $5.7 billion. STUART NICHOLLS *Managing Director and Chief Executive Officer (since April 2025)* As CEO and Managing Director of Strike Energy Limited, Mr Nicholls' led the company from a small exploration business to becoming an ASX200 listed entity. Mr Nicholls' experience also includes management roles within Shell in exploration, commercial, strategy outside of his time in military leadership positions. STEPHEN KELEMEN *Non-Executive Director (since May 2019)* An engineering graduate from Adelaide University, Mr Kelemen had 38yrs with STO and led STO's coal seam gas (CSG) team from its inception in 2004.

ANNA SLOBODA
Non-Executive Director (since October 2020)
Ms Sloboda has 20 years experience in corporate finance assisting several junior resource companies globally. Ms Sloboda has a Master of Economics from Belarusian University and an Executive MBA from Melbourne Business School.

Changes to the Board's composition may occur in due course. This author would see value in introducing technical skill-sets (particularly frontier basin exploration and appraisal with resource style plays) to assist EXR in navigating its current phase of evolution.

Key Risks

Capital intensity - *Whilst the opportunity set is large, the understanding of the Taroom is nascent.* There is potentially a long lead time and significant capital to be invested in order to definitively establish the deeper Taroom as a BCG system or even determine the prospectivity of the deeper parts of the basin and thus a large portion of EXRs tenure.

Where possible, this should be progressed by third parties with the capital to do so. EXRs work program to secure all of its permits under 15yr PCAs should provide significant lead time to allow the prospectivity of the deeper section of the trough, to evolve around it.

Technical/Geological Risks (Petrophysics, productivity and sustained deliverability) – Whilst flows have demonstrated encouraging rates, testing has been short duration and or compromised by well completion design and/or reservoir management on test. Extended testing has been identified by the company as key valuation step but formulation of what level of testing is required as proof of concept will be critical in defining the pathway forward for each of the play types.

Execution Risks – Resource play developments have proven challenging in Australia with the success enjoyed in the North America arguably yet to be replicated in Australia. This is undoubtedly an experience of many investors to date. Therefore, prescriptive classification of play types at this early stage may introduce unhelpful associations with past Australian listed pioneers.

Liquidity - EXRs strategic plan outlined is appropriate for the business, recognizing the limitations of its available liquidity and relative cost of capital. Whilst we identify the company's 'landbank' as a material avenue for future 'funding' the company's lack of revenue generation may require the need for additional equity dilution.

Prima facie, the current program outlined is funded by the company's existing cash and equivalents. However, this author views the balance sheet's current position as an impediment to the market's full appreciation of the potential intrinsic value of EXRs asset base, precluding the share price to fully benefit from nearer term catalysts (Diona-1 results etc).

Approvals - State and federal approvals (central to EXRs current strategy to build value) in the modern climate cannot be certain, even in a pro-development state. Longer term, environmental approvals can present hurdles to full-field development.

APPENDIX 1 - Review of the Taroom

The Taroom Trough of the Bowen Basin presents as a possible Basin Centred Gas (BCG) accumulation; a potentially unique blend of tight reservoirs continuously saturated with hydrocarbons being generated by the interbedded source rocks. In North American terms, this is more akin to the Green River and Piceance Basins of Wyoming and Colorado, San Juan Basin in California or indeed, the Montney Formation, western Alberta-northern British Colombia. The Nappamerri Trough within the Cooper Basin is the most mature example in Australia.

However, the Taroom's classification as a true BCG accumulation remains inconclusive, simply on account of the lack of data. At the very, least, exploration and appraisal activity since the turn of the century, has underscored the potential of the Taroom to yield Tight Gas Sand (TGS) accumulations. As the knowledge of the Trough grows, the combination of commodity price, field size and well engineering will ultimately dictate whether the Taroom represents the next material source of gas and liquids production to feed the east coast's energy and LNG export demands.

Evolution of the Taroom – pre-2000

Industry knowledge of the Taroom dates back by over 60yrs with the first deep well, Cabawin-1, drilled into the Permian sequence in 1960. Though the well proved a working petroleum system, the conventional reservoirs were too ' tight' to be viably developed via the prevailing available industry technologies. In addition, the lack of an addressable market and/or supportive pricing, further precluded commercialisation. Consequently, post the Cabawin discovery, only a handful of wells were drilled with the focus primarily on conventional oil exploration targeting the established Jurassic and Upper Triassic sequences within the Surat Basin rather than the prospectivity of the underlying Early Triassic and Permian stratigraphy.

Evolution of the Taroom – post 2000

Even with the evolution of the Coal Seam Gas (CSG) industry in the 2000s, deep exploration (particularly for gas) within the Bowen Basin has been limited and sporadic with just over 45 wells drilled to TD greater than 3000m. A quarter of these have been drilled since 2010, inclusive of the 7 wells drilled by QGC (Shell) as part of a dedicated deep Bowen Basin tight gas sand, exploration program. The program established the Basin's potential to host TGS accumulations as well as demonstrating key elements (abnormal pressure gradients and pervasive gas shows non-conformable to interpreted structures) that allude to more pervasive prospectivity akin to BCG accumulations.

The BCG potential of the Taroom Trough was heralded by smaller operators in the area and has since been advanced by EXR (Elixir Oil and Gas Ltd) and OMA (Omega Oil and Gas Ltd). Activity in the area and (apparently) focused on deeper Permian prospectivity, has otherwise by lead by the operators of the LNG export facilities in Gladstone. Shell (by virtue of the QGC acquisition) has anecdotally matured the development potential around the Overston-Dunk area, whilst Santos undertook its own investigation of the Late Permian tight sands, testing 15km to the north of the Dunk-1 discovery in 2019.

A summary of the key wells referenced in this review are summarized in the following table:

Well	Drilled/tested	Primary objective	Secondary objective	TD (m)	Top Permian (m SS)	Test interval	Test duration (days)	Cum test vol (MMCF)	Sustained flow rate (mscf/d)	Peak flow rate (mscf/d)	Peak flow rate (bopd/d)	Pressure Gradient (psi/ft)	Comments
Cabawin 1	1960	Rewan Group	Kianga Formation	3685		Lower Triassic-Upper Permian	n/a	n/a	n/a	n/a		0.7	oil discovery. Minor production post.
Cabawin 1 East	1961	Kianga Formation											minor gas shows
Cabawin 2	1963	Kianga Formation	Precipice Fm	3156		Kianga Formation	n/a	n/a	n/a	205		0.52	minor gas shows, open hole test
Cabawin 3	1981	Kianga Formation	Moolayember	3180		Kianga Formation	n/a	n/a	n/a	200		0.52	minor gas shows. Compromised test
Cabawin 4	1983	Kianga Formation	Precipice Fm	3174		Kianga Formation	0.4	n/a	400	450		0.52	flowed gas and condensate on test. Frac sanded out
Overston 1	2003	Back Creek Group		2980	2701	Tinawon Sandstone	0.5	n/a	n/a	n/a			shows during drilling; no apparently flow to surface on test
Overston 2/2A	2004	Back Creek Group	Muggleton Sandstone	3140	2708	Lorelle Sandstone	2.25	1.38	613	2350			testing 3105-3110m TVD concident with Lorelle sst
Daydream 1	2011	Kianga Fm/Back Creek Group	Rewan Group	4140	3592	Back Creek Group	30	0.106	4	3500		0.56	
Fantome 1	2012	Rewan Group	Kianga Formation	4694	4103	Kianga/Back Creek Group	70	5.014	72			0.6	
Tasmania 1	2012	Kianga Fm/Back Creek Group	Rewan Group	4623	3646	Kianga/Back Creek Group	31	0.006	0			0.64	2.6%–12.7% and 0.0007–0.024 mD,
Dunk 1	2014	Back Creek Group	Kianga Formation	3180	2698	Kianga/Back Creek Group	30	17.06	700	4000		0.54	Co-mingled test of Tinawon, Overton & Lorelle sands. 1.8% to 13.1%, permeability from 0.004 to 0.17 mD
Magnetic 1	2015	Back Creek Group	Kianga Formation	3095		n/a	n/a	n/a	n/a	n/a		0.63	
Canyon 1	2023	Back Creek Group	Kianga Formation	4000	3225	Kianga/Back Creek Group						0.79	
Canyon 2	2023	Back Creek Group	Kianga Formation	3600	3075	Kianga/Back Creek Group						0.72	Updip of Canyon-1
Canyon 1H	2024	Back Creek Group	Kianga Formation		3225	Kianga/Back Creek Group				600	452	0.79	
Daydream 2	2024	Kianga Fm/Back Creek Group		4141		Back Creek Group			1000	2600			Co-mingled test of late Permian sands and coals. Well potentially screened-out

Table 1: Well data from key tests of the Upper Permian-Early Triassic (Source: Queensland Government - https://geoscience.data.qld.gov.au/ well completion and testing reports[1]; Johnson & Parker; 2023; EXR company reports; OMA company reports) -

In terms of individual reservoirs and target sequences noted in the review, the stratigraphy of the Southern Taroom Trough is summarized below (Figure 2). We note that in the context of relatively limited well penetrations and seismic coverage, the stratigraphic record presented may prove inconsistent with the nomenclature applied in the corresponding well reports and referenced below. As noted by many of the journals reviewed, the establishment of a consistent stratigraphy column will be essential in future well correlation and play fairway mapping.

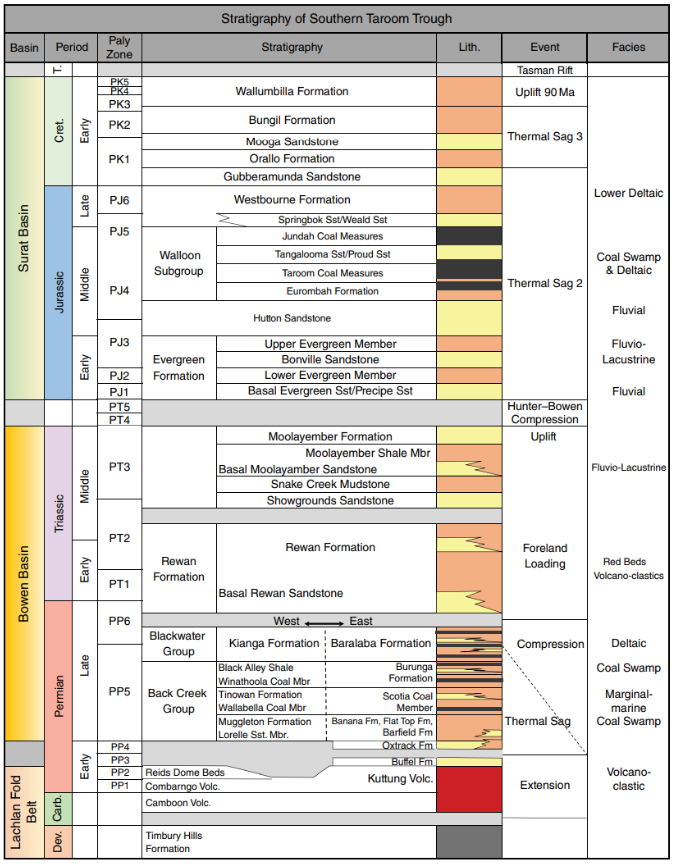


Figure 2: Stratigraphy of the Southern Taroom Trough (Cooper et al, 2023, following Bakarat et al, 2019).

Taroom Play Potential

"Basin Centred Gas (BCG):
A type of tight gas that occurs in pervasive, distributed basin centred gas accumulations, where gas is hosted in low permeability reservoirs which are commonly abnormally over-pressured, lack a down dip water contact and are continuously saturated with gas." AAPG Wiki

In the race over the past 15yrs, to secure additional and sizeable inventories to supply the large LNG export facilities, industry has speculated on the largely untapped potential of the Taroom Trough – particularly the central part of the Bowen Basin – to produce significant quantities of hydrocarbons from a deep, BCG system. However, drilling to test the deeper, Permian sequences has been limited to only a handful of wells, in part due to the sparsity of both well penetrations and seismic coverage over the Taroom's vast footprint.

Since the first deep well was drilled in 1960 (Cabawin-1) the lack of economic extractive technology combined with limited commercialization pathways, resulted in limited and sporadic drilling, of which negligible interest was shown in continuing to test the deeper parts of the Taroom. Despite advent of the CSG to LNG boom in the new millennium, drilling remained focused on the overlying Surat Basin. Even with the evolution of new unconventional exploitation technologies due to the US onshore shale boom, post 2010 drilling remained limited to the pursuit of tight sandstone potential on the flanks of the Trough, with only a dozen or so wells exceeding 3,000m TD (Figure 3).

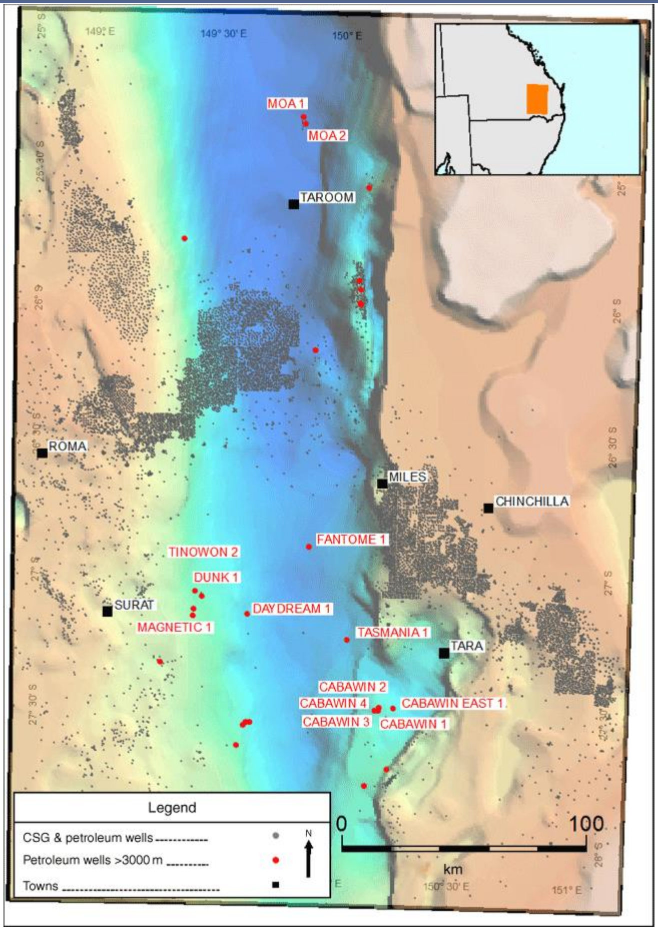


Figure 3: location of the key well tests (in red) of the Permian (Source: Johnson & Parker, 2023)

QGC (now Shell) Ltd was the first company to embark on a dedicated program to test the deep, tight gas potential of the Taroom Trough. The company drilled 7 wells from 2011-2015, of which Moa-1 & 2 were drilled to test the potential of the northern Taroom, whilst the remaining 5 were drilled to the south of Warumbilla (Figure 3). Fantome-1, Tasmania-1 and Daydream-1 were designed to test the deepest parts of the Trough within QGCs tenure, whilst Dunk-1 and Magnetic-1 were positioned closer to the palaeo-shelf on the flank of the trough. All the southern wells had the upper Permian Kianga (fluvial-deltaic dominant) and Back Creek (marine-marginal marine) sequences as their primary targets (Figure 2).

The Dunk-1 well proved the most exciting from a commercial perspective, defining a gas bearing sequence through the upper Permian Kianga-Back Creek formations. The well was substantially shallower than the deeper tests of the trough at Fantome-1, Tasmania-1 and Daydream-1, encountering a modestly over-pressured (0.54psi/ft) zone of interbedded coals and tight sandstones (Tinawon, Overton and Lorelle) that flowed gas to surface on a co-mingled test. Review[2] of the well results identified the interpreted Lorelle Sandstone as being the most productive of the three sand units in the Upper Permian. However, the review notes that it was difficult to confidently classify the results as substantive in defining a BCG accumulation noting that the upper Tinawon sands are observed to pinch-out up-dip on the Roma Shelf and thus the mild overpressure at the Dunk location might be explained due to the reservoir sequence being a stratigraphic trap. By extension, logging of the core and the classification of the upper Permian sequence as being representative of tidally influenced estuarine sand bars, is notable when reflecting on early depositional facies interpretation that saw this (admittedly more conventional) potential in the Early Triassic-Upper Permian sequence to offer broad basin wide reservoir prospectivity (Figures 4 & 5).

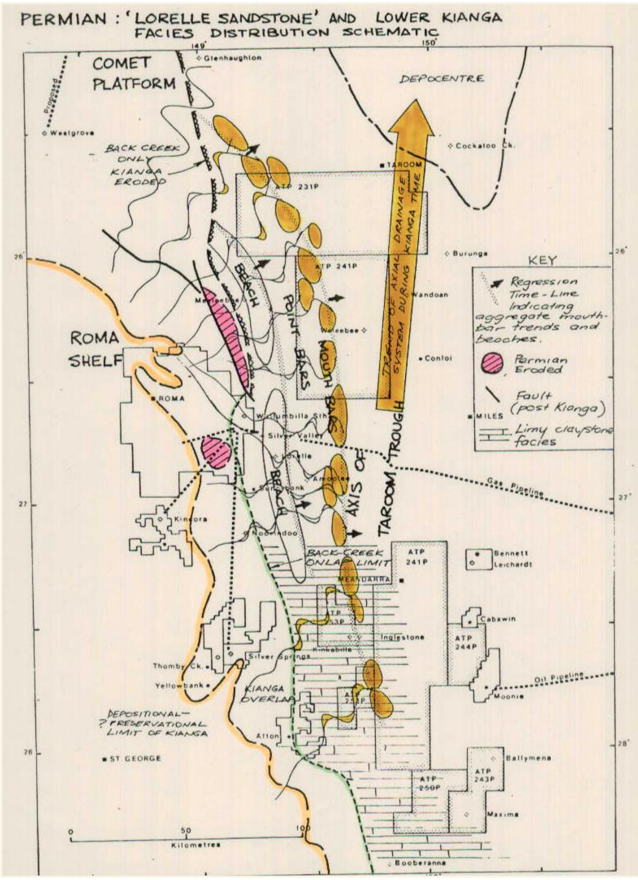


Figure 4: Reviews of the exploration potential of the Late Permian sequences of the Bowen Basin concepts in the 1980s saw the deeper basin offering potential from reservoirs forming as mouth bars. as to (Source: Coho Australia Ltd, 1982)

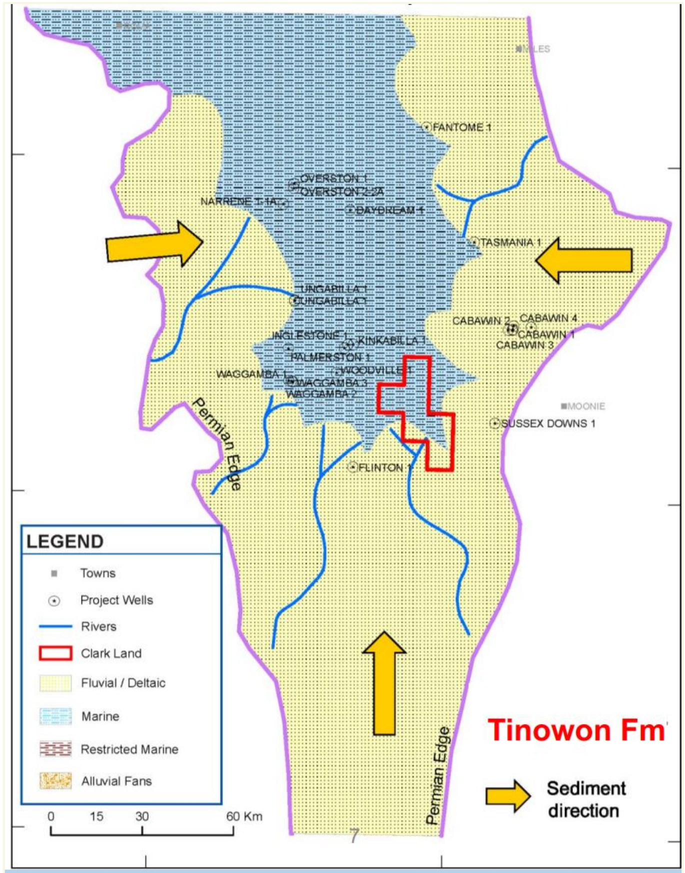
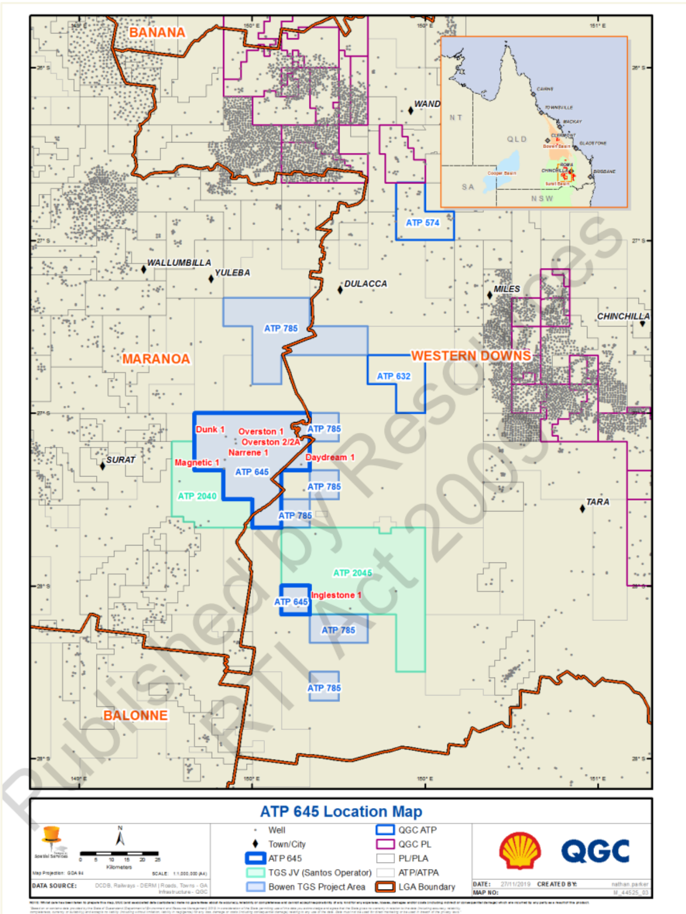


Figure 5: Facies modelling for the Late Permian naturally changed with further well data but the core (explored 15yrs earlier) of tidally influenced fluvial-deltaic sands persisted; the question remaining whether these reservoirs are more pervasive or discrete in nature. (Source: Nicholls et al, 2015 adapted from Hoffman et al, 1997)

The results of the Magnetic-1 well also challenged the BCG concept noting the high, water saturations found in the Lorelle Sandstone. The review[2] of the petrophysical data also concluded that a proportion of this water is 'free fluid' (non-irreducible). However, the report notes that the results of the Magnetic well - in the context of the broader program - could yet be explained as being evidence that places the Lorelle Sandstone in a transition zone between the younger and up-dip conventional reservoirs and a possible deeper BCG accumulation down-dip. Similarly, its demonstrable productivity at the Dunk (and Overston?) locations might lend more towards a discrete unconventional (tight) accumulation, thereby requiring greater understanding of the unit's distribution and structural controls to better delineate the areas of highest prospectivity.

In 2019, GLNG (Santos as operator) re-entered the Tinawon-2 well (drilled 2015 in ATP2017, 15km NW of Dunk-1), to fracture stimulate and production test the Upper Tinowon and Lorelle Formations. Results of the production test are not known. The concentration of reported wells around the Overton-Dunk discoveries, suggests this area remains a focus of Shell (Figures 6 and 7), noting record (without data) for Overston-10 exists within the Queensland Government geoscience database (https://geoscience.data.qld.gov.au/).



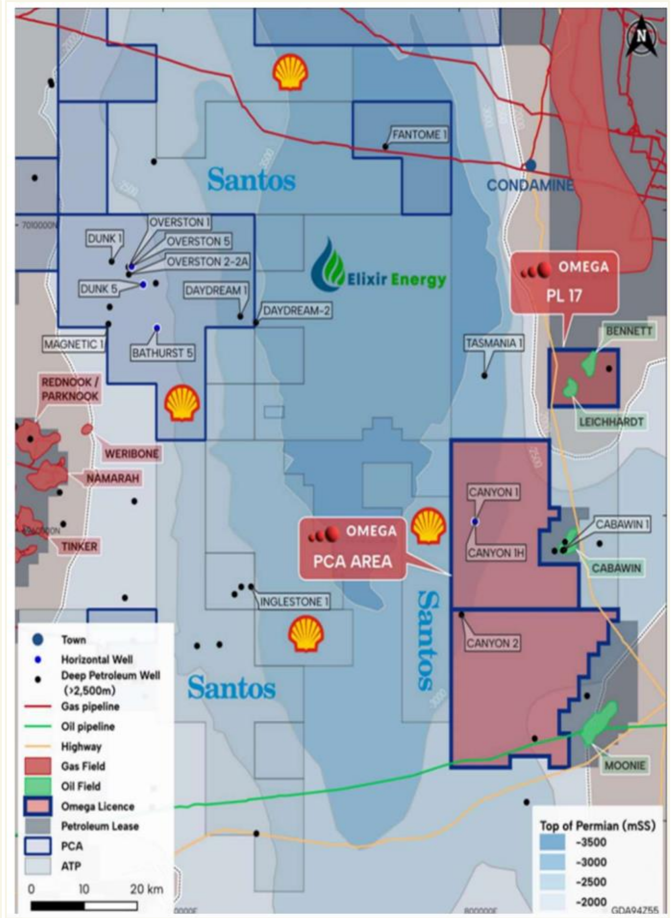
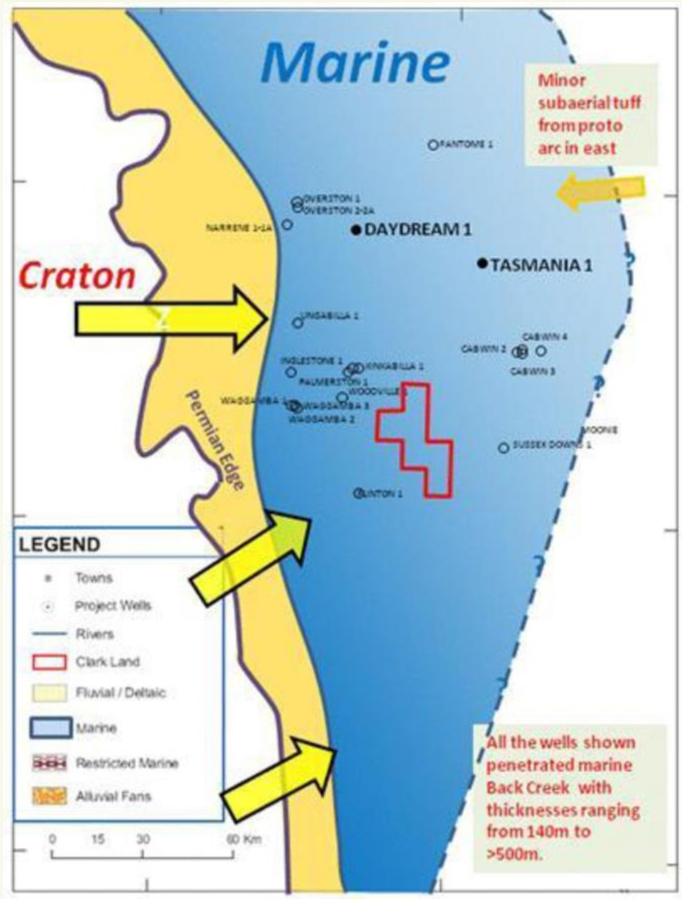


Figure 6: Shell's Taroom Interests including the ATP645 area thought to be the main focus of its current appraisal activities (Source: Qld Govt, geoscience data portal. Shell (QGC) ATP645 PCA submission[3]). public

Figure 7: OMA's map highlighting the company's interests include additional well locations beyond those presented in public Shell submissions. This review notes existence of Overston-10 in the record. (Source: OMA.ASX):

Clark Oil and Gas Pty Ltd (private company) reviewed the results (particularly) from the QGC program in 2015, in the context of defining a Basin Centre Gas accumulation (Nicholls et al, 2015). The technical review summarized existence of quantitative and qualitative evidence pointing to the key criteria defining a BCG system: Over-pressure; pervasive tight reservoir; saturated with gas; and negligible production water on test. In the context the work was undertaken in preparation for farming-down their interest in ATP840P (Figure 8), the study (in consultation with Petrel Robinson and Obann Resources consultants based in Calgary) concluded a potential resource comprising recoverable volumes of 11.8Tcf and 700mmbbls of condensate from the deep, central part of the Taroom Trough (Figure 9).



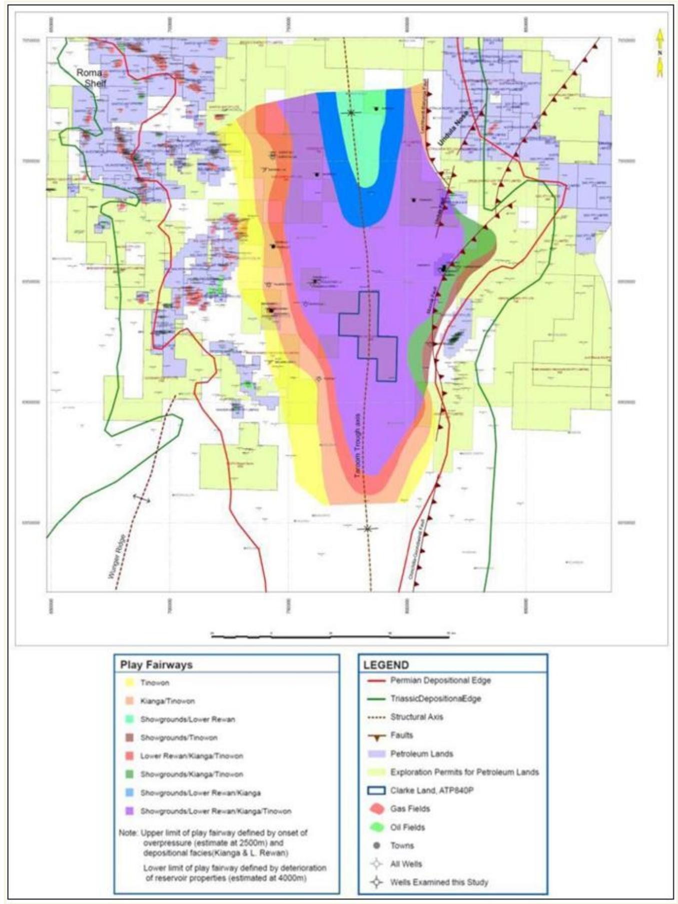


Figure 8: Facies map for the prospective Late Permian Early Triassic sequences within the Clark Oil & Gas' Source: ATP840P interests (red polygon. Source: Nicholls et al 2015).

Figure 9: Modelled play concepts highlighting Clark Oil & Gas' ATP840P interests (blue polygon. Nicholls et al, 2015)

Citing the results of the QGC (Shell) drilling program as well as the petrophysical results from the earlier Overston-1, Ingletone-1, Palmerston-1 and Ingabila-1 wells, the work concluded that the Daydream, Fantome and Tasmania wells established the presence of a large working BCG system involving Late Permian to Early Triassic aged coals and carboniferous shales source rocks charging bounding tight (low permeability) sandstone reservoirs. Due to the limitations of the data to map the distribution of the Permian stratigraphic units with confidence, it was postulated that pervasive accumulations of over-pressured, wet gas charged reservoirs could exist within the deeper part of the Trough as significant unconventional targets for commercial development via modern fracture stimulation technologies. More generally, the study suggested that over-pressured reservoirs occur below c2500m, with step-changes in the pressure gradient as well as background gas readings coinciding with the top Permian. However, this author notes that the conclusions relied heavily on the results of just the Tasmania-1 well (Figure 10).

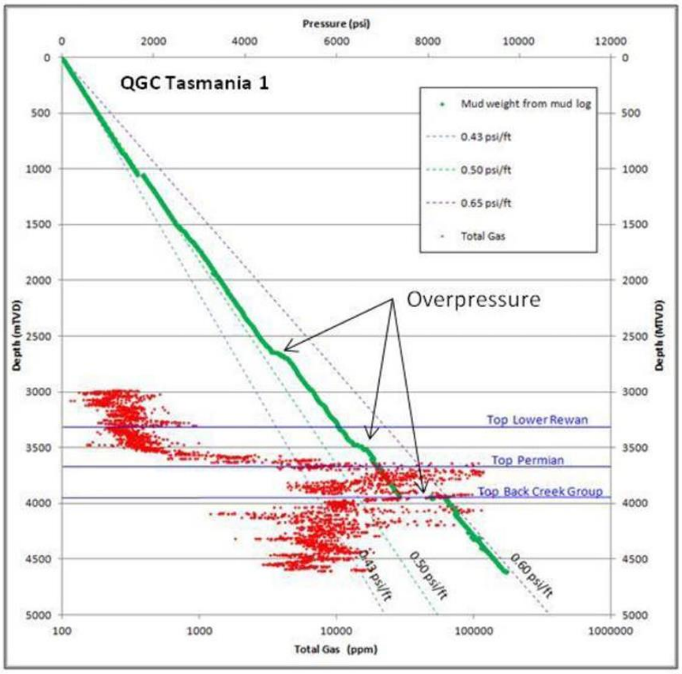


Figure 10: Plot of the pressure gradients from the mudweights applied in drilling the Tasmania-1 well. The study highlights the pick-up in background gas coincident with the Top Permian and Top Back Creek Group and the associated step-changes in mudweight (Source: Nicholls et al, 2015)

Further work lead by Clark Oil and Gas (Hayes et al, 2016), expanded on these original conclusions through correlation to the established BCG plays of the Piceance Basin, Colorado-Wyoming and the Western Canada Sedimentary Basin (Montney). The Taroom's deep, thick Permian (WCSB equivalent) through Early Triassic (Piceance equivalent) stratigraphic section present as potentially offering ideal conditions for unconventional, basin-centred "Deep Basin" gas and liquids. Per the analogues considered, penetrations of the deeper Bowen Basin have demonstrated low permeability, anomalously pressured hydrocarbon yielding reservoirs interbedded with mature source rocks. Consequently, the study encouraged industry to consider application of vertical and horizontal development techniques used in these basins to exploit the Taroom. What was not discussed was the relative advantages of the Montney and Piceance in terms of reservoir depth (Montney) and the stacked pay (Piceance) which may offer material development cost advantages over the relative depths of the equivalent zones of the Taroom.

To that end, understandably, well completion design remains at a nascent stage (at least) for the deeper unconventional Bowen Basin. A technical review by Johnson & Parker in 2023 considered the DFIT (Diagnostic Fracture Injection Testing) results and stimulation designs of the original QGC program. The work saw the play potential of the deeper Bowen Basin to yield large, tight gas accumulations, made potentially economically viable with appropriate unconventional extractive technologies. The study concluded that the treatment designs (particularly the fracture stimulation fluid compositions) were ineffective by-in-large; inappropriately designed for the very low permeability and challenging petrological characteristics of the reservoir sandstones, resulting in high near well bore pressure losses. The study noted that the type of stress profile modelled from the data is not inconsistent with other Permian intervals in other Australian basins and *"poses a problem in placing stimulation treatments effectively in the higher-stressed sandstone sequences interbedded with lower-stressed coals".*

To EXRs credit, recalibration of stress model to better design the stimulation has been a focus for the business to tackle a (arguably) key risk to the economic potential of the deeper basin interests. The team has recognized the need and rebuilt the mechanical earth model to potentially ensure sufficient stand-off between the lower stress coals and the target reservoirs to more effectively fracture the sandstones (Cooper et al, 2023).

In terms of the contribution to the refinement of the Taroom's classification as a BCG accumulation, the work by Johnson and Parker was arguably inconclusive. The pressure gradients of the 5 southern wells were given in the context of the original Kianga-Back Creek Cabawin-1 discovery and subsequent appraisal (Figure 11).

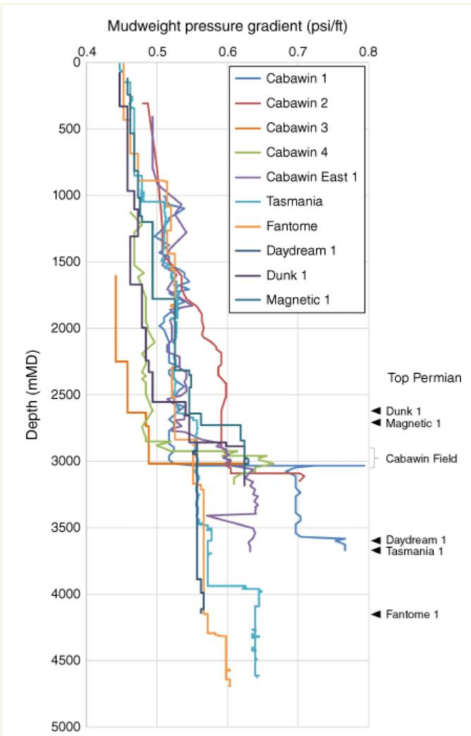
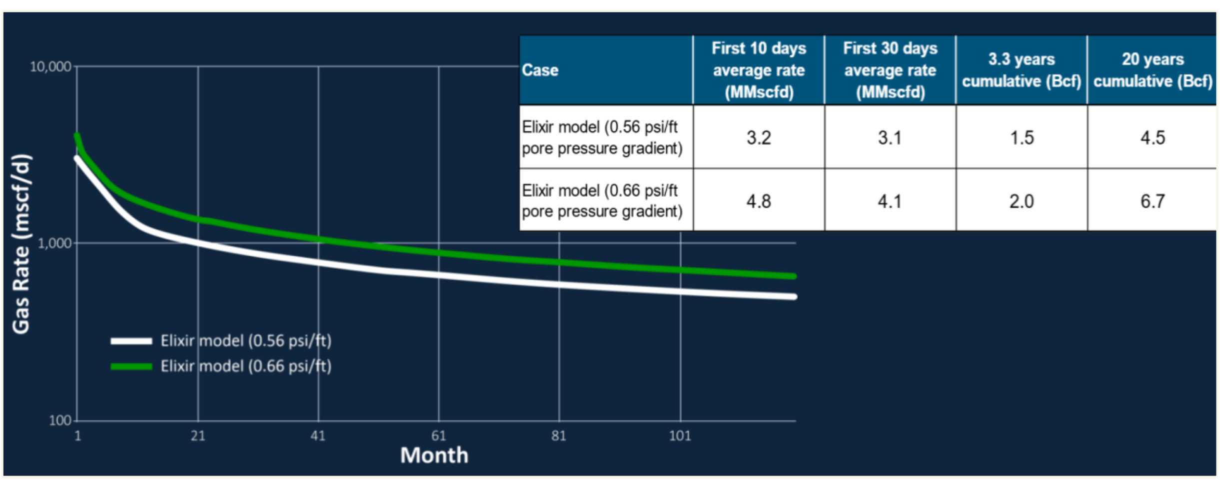


Figure 11: Mudweight pressure gradients from key wells within the southern Taroom Trough (Source: Johnson & Parker, 2023)

Whilst the concept of Basin Centred Gas was not expressly referenced in the Johnson & Parker study, this review of their work in combination with the relevant well reports[1], determines that the well results of the original QGC program, all apparently conformed to some of the key defining elements of BCG plays in terms of reservoir presence, charge and hydrocarbon shows non-conformable to structure. However – and though none of the wells were drilled underbalanced through the primary target formations – evidence of strongly over-pressured Permian sequences was limited and the study concluded that results did not support basin-pervasive reservoir pressure gradients substantially greater than 0.60 psi/ft. As an aside, this author views this observation significant in the context of EXRs own study work on fracture stimulation design and recoverability variation between the upper and lower end of the pressure gradients assumed of 0.56-0.66psi/ft (Figure 12).



Case	First 10 days average rate (MMscfd)	First 30 days average rate (MMscfd)	3.3 years cumulative (Bcf)	20 years cumulative (Bcf)
Elixir model (0.56 psi/ft pore pressure gradient)	3.2	3.1	1.5	4.5
Elixir model (0.66 psi/ft pore pressure gradient)	4.8	4.1	2.0	6.7

Figure 12: Conceptual production profile from a Kianga completion highlighting the impact on recoverabilities due to application of the high and low end of the modelled pressure gradient of the Taroom Trough (Source: EXR – APPEA Presentation 2023)

Since then, whilst some reference to the (implied) larger scale opportunity of the Taroom as a BCG has been made in the press (here and here), proof of concept has largely been sponsored by EXR and OMA. However, results from the Canyon discovery and appraisal over the past two years have arguably built more on the discrete, tight gas sand potential of the flanks of the Taroom in this author's interpretation.

“Tight Gas Sands (TGS):
Tight gas sands are defined as sandstone formations with less than 0.1 millidarcy permeability. A tight gas reservoir is one that cannot be produced at economic flow rates or recover economic volumes of gas unless the well is stimulated by a large hydraulic fracture treatment and/or produced using horizontal wellbores” (Holditch, 2006)

The commercial potential of the southern Taroom has been evidenced by the Cabawin-1, Overston-1, Dunk-1, and Canyon discoveries, and Daydream-2 appraisal. Acknowledging the limitations of the data set (limited well penetrations, limited seismic coverage, limited publicly available data), at this point, this author considers that the data and circumstantial evidence lends these discoveries more towards discrete tight gas sand accumulations with at least some conventional style stratigraphic and possibly structural trapping configurations.

The results from the Cabawin-1 discovery well and subsequent appraisals (Cabawin-2 through 4) demonstrated that the over-pressured, hydrocarbon bearing Kianga “A” Sand encountered in Cabawin-1 was either not developed or poorly developed in the subsequent wells. Commentary provided with the well completion reports interpreted this to reflect the structural closure element to the interpreted Cabawin structure. There is also significant uncertainty in correlating individual beds between the Cabawin wells. Coho Exploration Ltd – who appraised the original discovery – concluded[4] the Cabawin 1 discovery constituted localised channel sands that were not correlatable or even present at the appraisal locations. Beyond which, the significantly over-pressured nature of the sand at Cabawin-1, relative to the other Kianga and Back Creek penetrations within the Trough, further supports the notion that the “A” sand is likely stratigraphically isolated (Johnson and Parker, 2023) and not representative of a pervasive basin pressure regime. This reinforces the need to better refine the stratigraphic record for the Taroom Trough, to provide context for the Cabawin results with respect to the more recent hydrocarbon bearing Late Permian sandstones.

Similarly, the Overston-1 location (drilled in 2003 by Sampson Oil & Gas and Sunshine Oil & Gas) was chosen as it was interpreted to coincide with a large NW-SE trending faulted Permian aged anticline. Though there was evidence of gas through the primary Tinawon target (8m net pay), the well test report recorded negligible flow rates This author interprets the results of Overston-1 were considered (by the joint venture) to be due to the well being drilled off-structure, highlighting the positive results from the Overston-2/2A well, drilled immediately afterwards (spud March 2004). The Overston-2/2A well encountered significant shows of gas through over-pressured reservoirs; interpreted to be Tinawon, Overston and Lorelle Sandstone equivalents. Flow-testing of the Overston-2A was apparently focused on the Lorelle Sandstone (3,105-3,110m TVD) and yielded peak rates of 2,350mscf/d. QGC’s (Shell) Dunk-1 well was drilled proximally to the original Overston locations and tested Tinawon, Overston and Lorelle sands on a co-mingled basis. Several Overston appraisals have been undertaken by Shell in recent years, suggesting either (or both) that potential development is concentrated on the original structural (anticlinal) control or a stratigraphically bound accumulation(s) within the Back Creek sequence (Dunk/Tinawon, Overston and Lorelle sands. Figure 13).

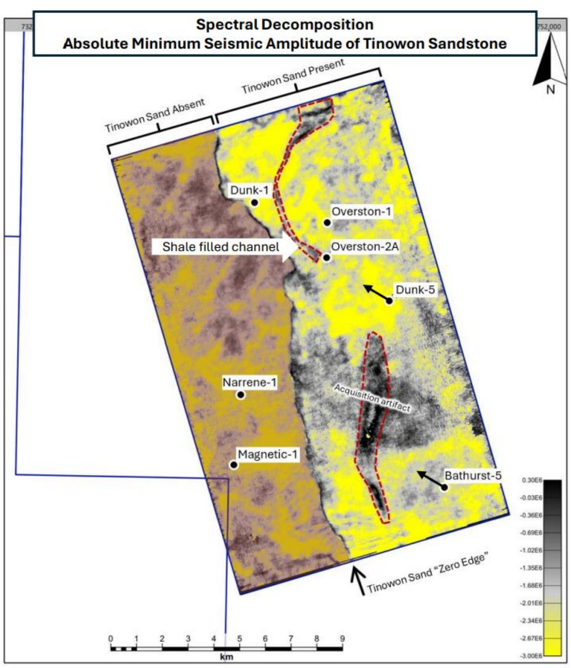


Figure 13: Spectral decomposition at the Tinawon Sandstone interval within Shell’s Overton 3D seismic volume. (Source: EXR)

The Daydream-1 location was a step-out to the Overston location and drilled substantial downdip. The well that sought to prove the existence of a pervasive gas accumulation exists through the late Permian and Early Triassic sequences. After which, well testing would be undertaken to establish reservoir deliverability at commercial flow rates. Whilst a peak instantaneous rate of 3,500mscf/d is cited from industry (EXR, OMA presentations), testing of the gas bearing sequence appeared to have significantly impacted by extremely low permeabilities (<100 nano Darcy), porosity impacted by the presence of clays and/or an ineffective stimulation design (Johnson and Parker, 2023).

The follow-up appraisal well, Daydream-2, was drilled by EXR in 2023 and tested in 2024. The well was drilled down-dip of the Daydream-1 location and demonstrated encouraging flow rates (up to 2,600mscf/d peak and 1,000mscf/d stabilized) before downhole complications (water/condensate banking offered as a possible cause with the release) prompted shut-in. This result presents as the most encouraging demonstration of BCG potential in this author's view though the inability to source critical petrophysical data and DFIT results are highlighted as caveats.

The Canyon-1 discovery is a little harder to contextualise due to the lack of available public data. Subsequent horizontal testing of the uppermost Kianga-Back Creek sequence sandstone at the Canyon-1 location yielded a high oil cut; it was unclear as to whether any formation water was recovered. Notably, the sandstone reservoir pressure gradient was estimated at +0.70psi/ft at both Canyon-1 and Canyon-2, encouraging the +15km off-set does not preclude communication. Furthermore – and whist the location of the two Canyon wells appears to coincide with the edge of the interpreted flank of the Taroom Trough, the vertical tests were of similar total depth to the Daydream location but encountered top Permian c270m shallower than the Daydream wells. Therefore, the starkly estimated different pressure gradients (Table 1) and hydrocarbon mix suggests targeted Permian sequence exists within a very different generation regime; a peculiarity to say the least. Perhaps therefore, the sandstone tested has been uniquely named the Canyon Sandstone; interpreted to be younger than the Tinawon but pre-dates the oil bearing sands encountered at Cabawin-1 (Figure 14). The more pervasive existence of a Canyon Sandstone within the Taroom Trough and thus within the Southern Taroom Trough's stratigraphic record, will clearly be a focus of OMA in the short-term, with the results adding to the industry's understanding of the prospectivity of the basin.

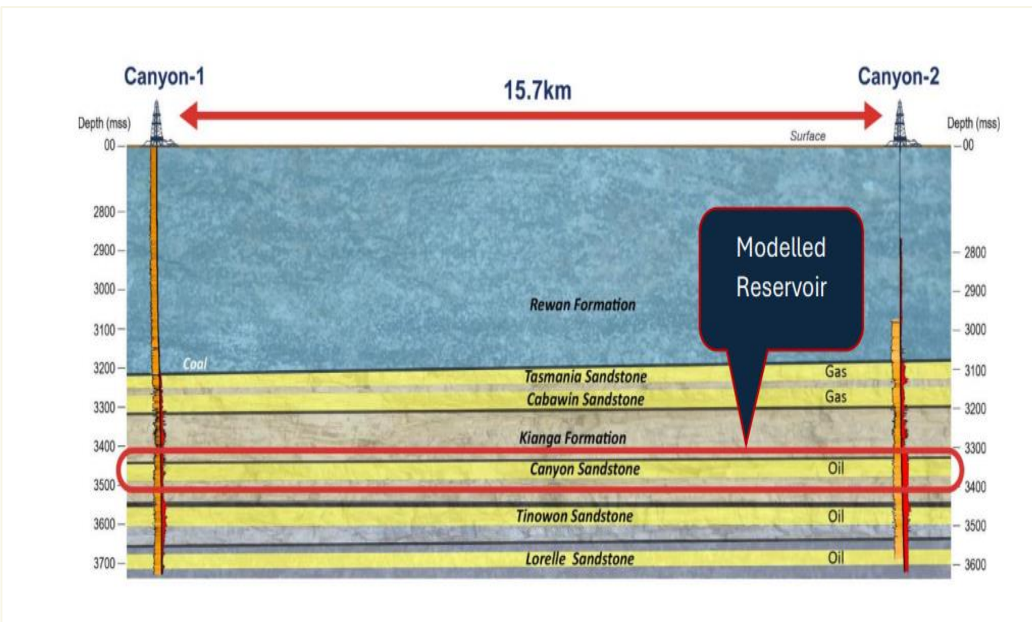


Figure 14: schematic well correlation between Canyon-1 and 2 location highlighting the Canyon Sandstone tested via the horizontal completion at Canyon-1H.

Like the Overston-Dunk and Daydream locations, the public disclosures by the operator (OMA) allude to stacked reservoir potential interbedded with hydrocarbon bearing coals. Initial independent resource estimates (1.5Tcf and 69mmbbls of condensate 2C) are based upon an estimated average productive reservoir thickness within the Kianga Formation (Figure 15) but applied across its Omega Project permits. It is noted that the average thickness modelled is approximately 10% of the thickness observed at the Canyon-2 location and the estimate does not account for the reservoir potential observed in the deeper Back Creek sequence. Subsequent volumetric interpretations apply only to the tested Canyon Sandstone and – though not constituting a formal resource per SPE Guidelines – in this author's view, provide for a possible guide as to the potentially technically recoverable volumes per well under a US-shale style, full field development model.

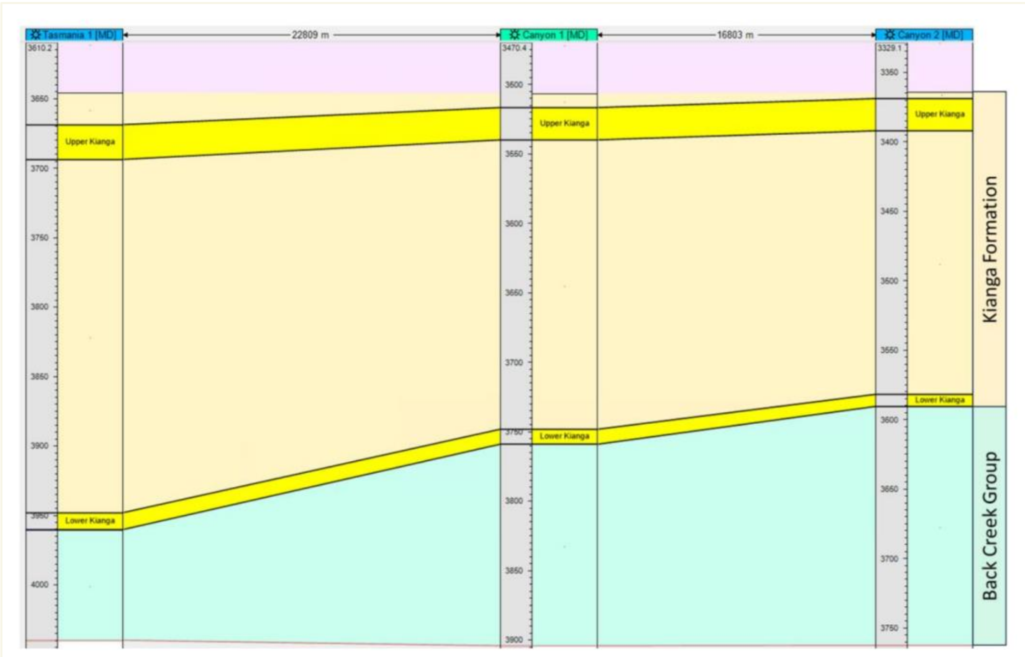


Figure 15: Correlation of key Upper Permian units between Canyon-1 and 2 locations and the deeper Tasmania-1 penetration (Source: OMA.ASX). NB: OMA.ASX existing Contingent resources of 1.73Tcfe 2C based upon bright yellow Kianga (27m thickness in average)

"Fractured Thermally Mature Coals:
Are deeply buried coals that have undergone intense geological heat and pressure, causing them to crack and form complex fracture networks, which are crucial for the migration of hydrocarbons like oil and gas. The dry thermogenic free gas is present within the coal's matrix porosity, organic porosity and within fractures. The term FTMC has been used to encompass all forms of gas-filled porosity in these coals and to differentiate them from CSG plays"..(Cooper et al, 2023)

Though little literature could be found specific to the Bowen Basin or Taroom Trough in terms of FTMC, the author includes the play concept in the review noting the presence of (at least) two coal measures within the broader Late Permian Kianga sequence tested at Daydream-2. As described by both Johnson and Parker (2023) and Cooper et al (2023) the relative stresses through the coal will present some challenges to be managed by future completion designs to produce from (within) the broader package. However, the Daydream-2 results in particular, as well as the observations from the QGC program offer encouragement for future commercialization efforts.

Summary

Drilling within the Taroom Trough – representing the thickest and deepest part of the Bowen Basin - has alluded to the key ingredients of a major Basin Centred Gas play: 1) Thick, low permeability reservoirs; 2) anomalous pressures; and 3) abundant mature source rocks. This potential is heralded by the large contingent resource inventories estimated by the main participants in the appraisal of the sub-basin's potential. Furthermore, these large numbers reflect (potentially) only a portion of the total prospective Permian sequence, and do not incorporate volumetric estimates for possible shallower, younger, coal-bed methane sequences. Given that the number of wells drilled into the deeper Bowen Basin total little more than 40 and have limited geographic spread, encourages expectations of an upside bias to these estimates in time.

Drilling and testing data has established a working hydrocarbon system(s) within the Late Permian-Early Triassic sequences. The limitations to quantifying the Taroom's potential are seismic coverage (and quality), and the population of well penetrations into the deeper Permian aged sequences. The resulting lack of a consistent stratigraphic record or the ability to focus on the more prospective areas both spatially and stratigraphically, would otherwise present short to medium term challenges to the success of exploration and appraisal.

However, in reviewing the relevant literature, this author views that term ‘Basin Centred Gas’ remains poorly defined or, at the very least, far from definitive. ‘Pervasive’ is arguably the key adjective with respect to differentiating a BCG accumulation as a sub-set of tight gas sands (TGS). Further to which, the author also infers that TGS can include more conventional style (ie structural or stratigraphic closures) accumulations which otherwise appear to fall outside of the BCG definition. Depth is another factor that remains an inconsistency in categorizing systems as BCGs: Productive zones from within the San Juan BCG system occur within a kilometre from surface, whilst the highly productive and more liquids prone zones from the Montney in southwestern Alberta occur between 1,500-2,500m sub-surface. Yet the Piceance analogue applied in the work on the Taroom to date, conforms to the depth ‘criteria’. Perhaps, therefore, the desire to classify the Taroom as a BCG accumulation or TGS is perhaps a distraction in and of itself unless there is bearing on R&D funding support?

Simplistically, the author views that a large part of the Taroom – coincident with the central trough of the Bowen Basin – remains underexplored but thus offers considerable prospectivity be it unconventional BCG, more discrete TGS accumulations or even conventional potential at the flanks of the Trough. Whether these zones of tight hydrocarbon pay prove to be pervasive or discrete, there remains anecdotal opportunity for future commercial development via stacked co-mingled vertical or sequential horizontal development applying appropriate unconventional completion designs. Further activity in the Taroom will evolve the rock mechanical and stress models to address key petrophysical limitations (variable stress regimes through differing facies, very low porosity and low permeability) to effectively treat the deeper Permian sequences to provide economic rates of extraction.

Commercial development – via vertical or horizontal full field development or a combination – is a function of both relative drilling depths (and associated cost) and prevailing commodity prices. Whilst the depth of the Taroom’s Upper Permian-Early Triassic sequence presents as an economic hurdle relative to either the Montney or San Juan analogues, the Taroom offers the relative advantages of favourable contemporary market and forecast pricing enhanced by healthy liquids’ yields. From a market perspective, stacked play potential alludes to size and scalability, which this author deems to be viewed very favourably by public markets through most parts of the commodity price cycle. The combination of higher value production and better pricing should enhance this appeal.

Appendix 2 - References

TECHNICAL REPORTS

1. The data and information referenced in this review are available in the well completion reports, well testing (where relevant) and associated data for Daydream 1, Fantome 1, Tasmania 1, Dunk 1, Magnetic 1, Cabawin 1, Cabawin 2/2A, Cabawin 3, Cabawin 4, Cabawin East 1 and Tinowon 2 in the GSQ Open Data Portal at https://geoscience.data.qld.gov.au/.

2. ATP 645, BOWEN BASIN, QUEENSLAND Geology & Geophysical Studies Report. QGC (Shell), June 2016

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4. Petroleum Potential of the Taroom Trough, Bowen-Surat Basins; Coho Australia Ltd (1982) via GeoScience Queensland data portal (https://geoscience.data.qld.gov.au/data/report/cr012105)

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Nil Satis Nisi Optimum

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Personal disclosures
Jon Bishop ('the author') did not receive assistance from the subject company (Elixir Energy Ltd) or companies in preparing this research report. The opinions expressed in this report represent the independent view of the author following review of the publicly available company reports, industry publications and technical reviews. The author will receive payment for the preparation of the report from the subject company.

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