Anatomy of a land release

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SUMMARY

Historically the Galilee Basin has been explored for both conventional petroleum and coal seam gas; however, in comparison to other sedimentary basins of a similar age in Queensland, the Galilee Basin remains relatively under explored. This paper takes an in-depth look at a single land release for petroleum exploration in the Galilee Basin made in 2008. In the short term, this led to a flurry of activity across the basin, but in the longer-term most of the awarded tenures have ceased to exist.

This raises the question of how we might measure the success of a land release. Is it by the number of applicants eager to secure acreage, or is it by the long-term success of those applicants? And how do we factor in the unforeseen impacts of global economic crises, oil price changes, regulatory uncertainty and poor social licence when assessing the tenures and ultimately the land release?

This paper reviews how each tenderer, along with a few existing tenure holders who were already operating in the basin in 2008, have fared since the grants of their tenure. Exploration in the Galilee Basin is continuing, but commercial success remains elusive.

Key words: Galilee Basin, land release, exploration, petroleum, coal seam gas

INTRODUCTION

In 2008, the Queensland Government released a call for tenders across several basins in the State (Figure 1). PLR2008-1 and PLR2008-2 were the first land releases in the northern Galilee Basin after the introduction of competitive bidding in the *Petroleum and Gas (Production and Safety) Act 2004.* The eighteen areas attracted 67 applications over the northern Galilee Basin, a positive indication of the robust exploration environment at the time. Most of these tenures were granted in either 2009 or 2010, meaning the current 12-year exploration term for these ended either in 2021 or 2022.

EARLY EXPLORATION

Petroleum exploration began as early as 1922 with HNT (Tambo) 1, followed by MCO (Nive River) 1 in 1929 and DON Barcaldine 1 and 2 in 1930. However, a more sustained effort commenced in 1957 and continued to the mid-1970s. This drilling was supported by significant seismic acquisition in the 1960s and 1970s. This early phase of activity came to an end with the withdrawal of income tax concessions for exploration in May 1973 and the termination of the Federal Petroleum Search Subsidy Scheme in June 1974. Focus during this period was on conventional targets (Figure 2) Refer to Hawkins and Green (1993) for more detail on early exploration efforts.

In the 1970s and 1980s, there was considerable effort made by the State Government through its Stratigraphic Drilling Program, and a number of deep stratigraphic wells were completed. Additionally, the Bureau of Mineral Resources (now Geoscience Australia) undertook a shallow stratigraphic drilling program in the 1960s, and again in the 1980s. However, these wells were all less than 150m deep.

In the 1980s, over 32,800km of seismic was acquired over the basin, of which over 17,000-line km were acquired by Esso. Drilling focussed on shallow targets, around 500m deep, but 31 wells later no economic hydrocarbon discoveries were made.

EARLY COAL SEAM GAS

Interest in coal seam gas (CSG) in the basin, started in the 1990s, around the same time as early CSG drilling in the Bowen Basin. In 1992, Enron Exploration Australia Pty Ltd was granted ATP 529 over 602 graticular blocks, and commenced drilling for coal seam gas in the Rodney Creek and Crossmore areas. The target formation was the Betts Creek beds, but an early pilot at Rodney Creek was inconclusive. In 2016, ATP 529 was replaced with ATP 2019, a tenure under the 2004 Act which allowed for the grant of Potential Commercial Areas (PCA 314 and PCA 315). The current holders are Beaconsfield Energy Development Pty Ltd (50%) and Capricorn Energy Pty Ltd (50%).

ATP 743 and ATP 744 were applied for under the *Petroleum Act 1923* in 2003, and granted in 2009 under the *Petroleum and Gas (Production and Safety) Act 2004.* These tenures held by Comet Ridge Galilee Pty Ltd, have been explored for both conventional and coal seam gas targets, and their current extent is restricted to PCAs (PCA 320, 321, 322 in ATP 744 and PCA 319 in ATP 743).

ATP 813, lodged in November 2004 for under the *Petroleum Act 1923*, was granted in March 2006 under the *Petroleum and Gas (Production and Safety) Act 2004.* This tenure is held by Eureka Petroleum Pty Ltd, a wholly owned subsidiary of Blue Energy Ltd, and its current extent remains under applications for a number of PCAs. It lies strategically between the granted PCAs of ATP 2019 and those of ATPs 743 and ATP 1015.

A number of other tenures which were either already granted or under application at the time of the 2008 land release, are no longer current.

PLR-2008 LAND RELEASE

The closing date for applications was 4 August 2008, and interest in the PLR-2008 land release was high. Table 1 summarises the results.

With grant dates in 2009 or 2010, the tenures were all due to relinquish one-third of their area at the end of the first four-year term in either 2013 or 2014. A number of the ATPs did not proceed beyond the first work program period, relinquishing in full on or around the end of that period. A further four ATPs were relinquished within the second 4-year work program period, in July 2018. Only one ATP from the 2008 land release, ATP 1015, remains in force at the time of writing, although it has been transferred to Comet Ridge Galilee Pty Ltd, and has two PCAs (323 and 324) which were declared in August 2022.

Other ATPs that were either under application or granted at the time of the 2008 land release are listed in Table 2.

EXPLORATION RESULTS

Work programs in these tender applications represented a level of activity not previously seen in the Galilee Basin, and in combination with the existing ATP 529 and the prior existing applications decided under the new legislation, have resulted in a significant body of work being completed in the northern part of the basin.

The combined drilling effort for the period 2009 to 2013 was 73 wells, compared to the 110 wells drilled over the previous 50-year period. Approximately 1,870km of seismic was acquired, and existing seismic was also reprocessed and reinterpreted. A multitude of chemical analyses and other testing was also completed. This has subsequently increased the knowledge base for the basin.

Non-commercial discoveries were made by Exoma Energy in ATP 999 in Katherine 1 and Katherine West 1 wells. In addition to the CSG plays in the Permian Betts Creek beds and Aramac Coal Measures, Exoma also identified two other independent hydrocarbon plays; including conventional oil in the Jurassic Hutton and Adori Sandstones, and shale oil and/or gas in the Cretaceous Toolebuc Formation.

Additionally, as a consequence of the implementation of sections of the *Water Act 2000* on underground water impacts, most of the companies with acreage over the norther Galilee Basin co-operated to produce a report that collated and assessed the existing groundwater data over the northern Galilee Basin (RPS Australia East Pty Ltd, 2012). The Galilee Basin Operators' Forum was an informal collective that jointly funded the significant amount of work, aimed at provided an accessible interpretation of the existing groundwater data that could form the basis of further work, if and when, coal seam gas production commenced. The result was a broader study than any company would have undertaken on its own. An unanticipated benefit of the collective effort was the positive gains in stakeholder engagement over the course of the study which commenced in 2011.

Nevertheless, thirteen of the land release areas were relinquished in full on or near the end of the first 4-year work program. Additionally, three of the areas never proceeded to grant and were withdrawn in 2013, ATPs 1043, 1048 and 1050.

The following period, from 2013, saw a reduced level of activity. Only three petroleum wells were drilled, all by Comet Ridge in ATP 744. Twenty-six coal seam gas wells were drilled, most of these within ATP 2019 on the Glenaras project. One was drilled on ATP 813, two on ATP 1015 and the remaining 5 were drilled in 2013 on ATP 666, 667 and 668 which were subsequently relinquished in full. Since 2013, 344km of new seismic has been acquired, all by Comet Ridge as part of the Koburra 2D survey in ATP 744, and 384km of reprocessing also by Comet Ridge over ATP 744 and ATP 1015.

IMPACTS ON EXPLORATION – OVERLAPPING TENURE ISSUES

Whilst there has always been significant coal exploration activity on the eastern margin of the basin, and now mining leases, the interior of the basin had not been targeted to any great extent. Shortly after the 2008 land release was made, there was a total of 135 exploration permits for coal under application by 20 companies across deeper parts of the basin (Figure 3). This was while coal exploration tenures were still available as over-the-counter applications, and with the benefit of expedited native title procedures and quicker environmental approvals, were able to proceed to grant in a quicker timeframe than the 2008 land release tenures. Many of these coal tenures were targeting underground coal gasification in areas where petroleum explorers were targeting coal seam gas. Between 2009 and 2014 Boab Energy Pt Ltd held a Mineral Development Licence for coal (MDL 408 over the Rodney Creek and Glenaras in ATP 529) based on the petroleum exploration results and water bore data. In the north of the basin, Linc Energy had two MDL applications, and Liberty Resources was acquiring extensive areas under EPCs potentially suitable for underground coal gasification. Clearly, the overlapping tenure regime had not contemplated this specific resource use, which was incompatible with CSG development. It was not until March 2013 that coal finally became subject to a tender process for EPC applications, which addressed the imbalance in the mechanics of the tenure regime between resources to some extent. And it was in April 2016 that the government announced a ban on UCG in Queensland.

At the current time, only the very eastern-most of the remaining petroleum tenures have EPC overlaps, but the situation that existed in late 2008 to early 2009 added a layer of uncertainty for the petroleum tenderers as they awaited grant.

IMPACTS ON EXPLORATION – LEGISLATIVE UNCERTAINTY

In 2011, early or mid-way through the first work program period for these tenures, the State Government made the Cooper Creek Wild River Declaration, shortly followed by the Georgina and Diamantina Basins Wild River Declaration, under the *Wild Rivers Act 2005*. These covered a substantial area covered by the PLR 2008 tenure areas (Figure 4). Although these declarations were not intended to apply to existing activities, these declarations nevertheless created uncertainty amongst explorers about future exploration and possible development. The declarations were subsequently amended in 2013 following a change in government, and followed by the repeal of the *Wild Rivers Act 2005* on 1 October 2014.

Wild Rivers areas were replaced by Strategic Environmental Areas under the *Regional Planning Interests Act 2014*. The Channel Country designated precinct has a significantly reduced impact area in the Galilee Basin.

However, a Labour government election commitment in 2017, which was confirmed again for the 2020 election, has created more uncertainty. The concept of pristine rivers, now known as the Lake Eyre Basin, was introduced and has been under debate with a Strategic Advisory Group established in 2021. In July 2022 the government proposed some options which remain confidential. A Consultation Regulatory Impact Statement is the next step but it has been delayed. The uncertainty created by the delay impacts exploration and the willingness to commit exploration dollars in a changing regulatory environment.

Constant policy changes that revolve around election results do not inspire confidence. Uncertainty around the future of the pristine rivers policy continues to drive uncertainty, and increase sovereign risk, in not just the Galilee Basin, but other basins as well.

IMPACTS ON EXPLORATION – OIL PRICE CRASH 2014-2016

Between the middle of 2014 and continuing to early 2016, one of the largest oil price declines since World War 2 occurred. This had an effect on exploration activity as it became increasingly more difficult to raise capital or find partners willing to farm-in to exploration projects. The impact on the ability of small to medium explorers to complete work programs in such an environment should not be underestimated.

The government responded in 2014 with some legislative amendments under the *Land and Other Legislation Amendment Act 2014,* adding a provision for special statutory extensions of work programs during the third reading of the Bill in May 2014. Under these provisions, tenures under the 2004 Act had a 2-year extension applied to their current work program period. Without these amendments, arguably many tenure holders would have been non-compliant with their work program commitments. However, it did not increase the overall term of the tenures, which remained at 12 years.

IMPACTS ON EXPLORATION – INFRASTRUCTURE

Infrastructure, or more specifically, the lack of infrastructure, has always been a considerable impediment to the future development of any petroleum resource. The Galilee Basin State Development Area, gazetted on 4 September 2015

does not provide much assistance for the gas sector. This gazettal follows the Galilee Basin Development Strategy (Department of State Development, Infrastructure and Planning 2013) which was aimed at strategic assistance for coal development on the eastern margins of the basin.

Gas development in the Galilee Basin is likely to require a critical mass of smaller discoveries, and a co-operative effort to develop a pipeline. It has to be assumed that if there was a significantly large accumulation of petroleum in the basin it would have been discovered by now; but it is not unrealistic to think that a number of smaller discoveries could still be commercial so long as tenure holders are able to keep tenure current under a reliable retention scheme until enough discoveries are made.

WHERE NEXT FOR PETROLEUM IN THE GALILEE BASIN?

In 2010, two areas released overlapped the southern-most part of the basin, one of which remains current (ATP 1069). There has otherwise been no land released within the Galilee Basin, including all the areas relinquished from the 2008 land release areas.

The only remaining land release area from PLR-2008 comprises part of ATP 1015 which was transferred to Comet Ridge Galilee Pty Ltd in 2017, and forms part of the Gunn project area together with ATP 744. The four remaining ATPs in the basin are either under applications for PCAs or have PCAs declared, and include ATPs 743, 744, 813 and 2019, held by three entities, all of which are small explorers (Figure 5).

Despite some promising indications, success for the basin most likely depends on the success across all or most of these remaining areas. It is likely that only cumulative success will provide the necessary supply to underpin the infrastructure that will be needed to get gas to the market. This means that it is critical that existing tenure can be retained until such time that sufficient resources are identified to underpin infrastructure development. Otherwise, first movers in greenfields basins are effectively penalised.

Since most of the basin is now vacant land, is it time for an acreage release? Or is it time to review competitive tendering in greenfields basins and allow over-the-counter applications once again for these under-explored basins. Given that our most successful basins have been through multiple exploration cycles, with success still coming, albeit on smaller scales, there is reason to believe that further exploration in the Galilee Basin could yet yield results that would contribute to the overall resource in the basin, and help further development.

The initial enthusiasm for the land release areas in 2008 did not translate into lasting success. The failure of all but one tenure to last a full 12-year term demonstrates the difficulties of exploration in greenfield areas, especially with policy and regulatory uncertainty thrown into the mix, and a global oil price crash which significantly impacted on the availability of money for exploration. In uncertain times money is more likely to be spent on appraisal than pure grass-roots exploration. Notwithstanding the short-lived nature of most of the tenures, the exploration effort overall, particularly in the initial 4-year terms, has certainly provided a wealth of data on the basin. Whether that data is utilised in further exploration cycles will depend on the willingness of governments to release further acreage for exploration.

Application number PLR	*No. of tenders*	*Successful tenderer*	*ATP No*	*Grant date*	*End date or non-current date*
2008-1-1	4	Nazara Energy Pty Ltd	974	19 July 2010	17 March 2014
2008-1-2	6	Nazara Energy Pty Ltd	978	19 July 2010	17 March 2014
2008-1-3	3	Queensland Energy Resources Ltd	984	14 August 2009	24 October 2013
2008-1-4	4	Pangaea Galilee Pty Ltd	989	16 December 2010	31 July 2014
2008-1-5	4	Stardrift Pty Ltd and others*	991	1 August 2009	12 July 2018
2008-1-6	3	Stardrift Pty Ltd and others	996	1 August 2009	12 July 2018
2008-1-7	5	Stardrift Pty Ltd and others	999	1 August 2009	12 July 2018
2008-1-8	4	Stardrift Pty Ltd and others	1005	1 August 2009	12 July 2018
2008-1-9	3	Stardrift Pty Ltd and others	1008	31 August 2009	8 May 2014
2008-1-10	3	Queensland Energy Resources Ltd	1010	1 August 2010	2 December 2015
2008-1-11	7	Queensland Energy Resources Ltd	1015	1 December 2010	Renewal lodged
2008-1-12	2	Galilee Coal Pty Ltd (name change to Tambo Coal & Gas Pty Ltd)	1020	20 April 2009	18 December 2013
2008-2-1	6	Queensland Energy Resources Ltd	1032	1 July 2010	2 December 2015
2008-2-2	5	Pangaea Galilee Pty Ltd	1041	16 December 2010	28 July 2014
2008-2-3	1	Energetica Resources Pty Ltd	1043	withdrawn	6 March 2013
2008-2-4	3	Queensland Energy Resources Ltd	1044	1 December 2010	2 December 2015
2008-2-5	2	Energetica Resources Pty Ltd	1048	withdrawn	6 March 2013
2008-2-6	2	Energetica Resources Pty Ltd	1050	withdrawn	6 March 2013

Table 1. Application results for land release PLR-2008-1 and 2008-2

ATP	*Application date*	*Grant date*	*End date or non-current date*	*Current status*
529	14 September 1992	30 November 1992	30 November 2024	PCA 314, 315 Converted to ATP 2019
666	1 February 1999	6 April 2006	17 April 2019	Non-current
667	1 February 1999	6 April 2006	17 April 2019	Non-current
668	1 February 1999	23 April 2007	17 April 2019	Non-current
743	18 March 2003	2 September 2009	3 September 2033	PCA 319
744	18 March 2003	15 October 2009	31 October 2033	PCA 320, 321, 322
799	30 August 2004	28 February 2018	13 December 2013r	Non-current
813	17 November 2004	2 February 2006	Renewal lodged	PCAs under application

Table 2. ATPs between 1992 and 2004, current or under application at time of 2008 land release

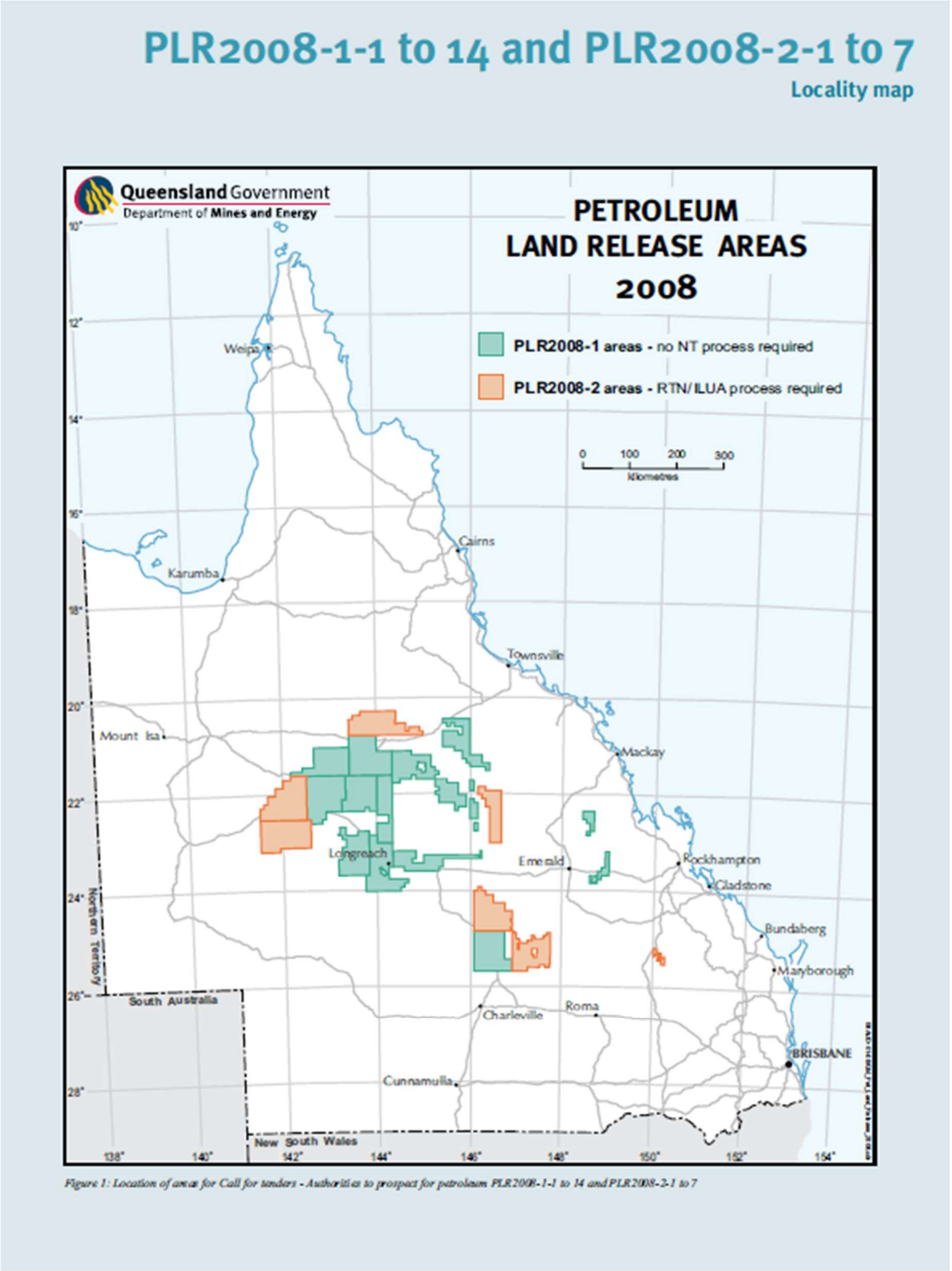

Figure 1: Location of areas for Call for tenders - Authorities to prospect for petroleum PLR2008-1-1 to 14 and PLR2008-2-1 to 7

Figure 1 Petroleum Land Release Areas 2008, from Queensland Government Call for Tenders

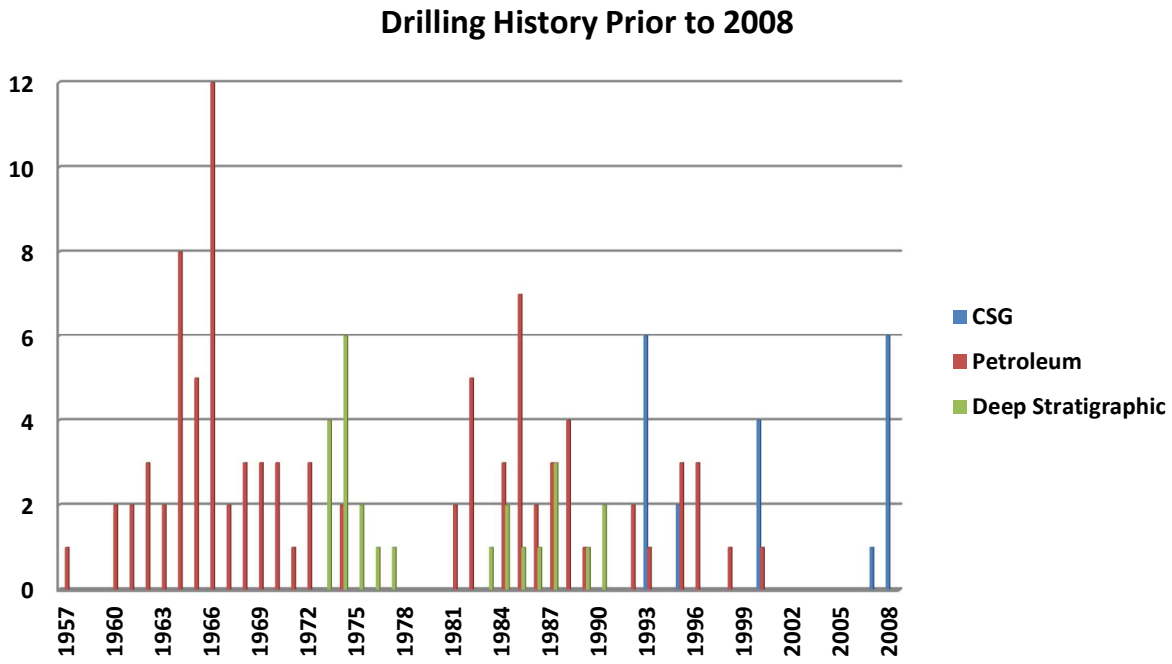

Figure 2 Drilling history in the Galilee Basin prior to 2008, shows clear early focus on conventional targets.

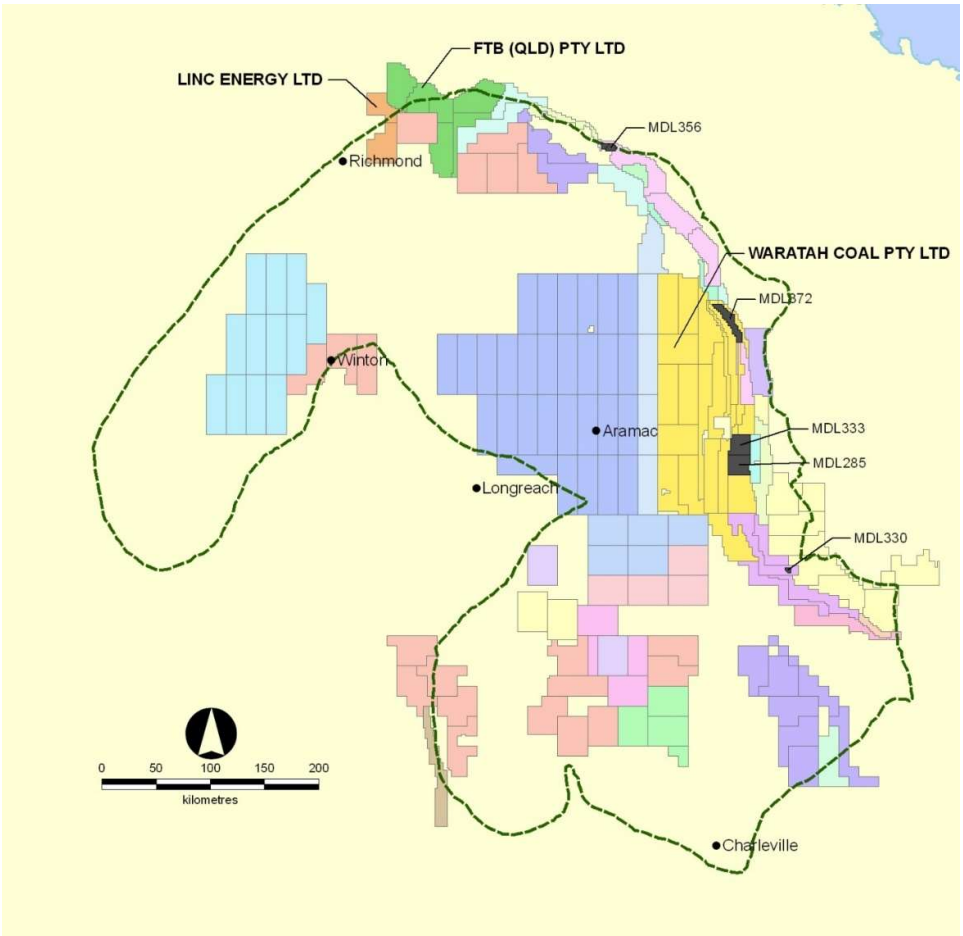

Figure 3 Extent of coal applications and grants, circa 2008-2009, figure courtesy of RLMS

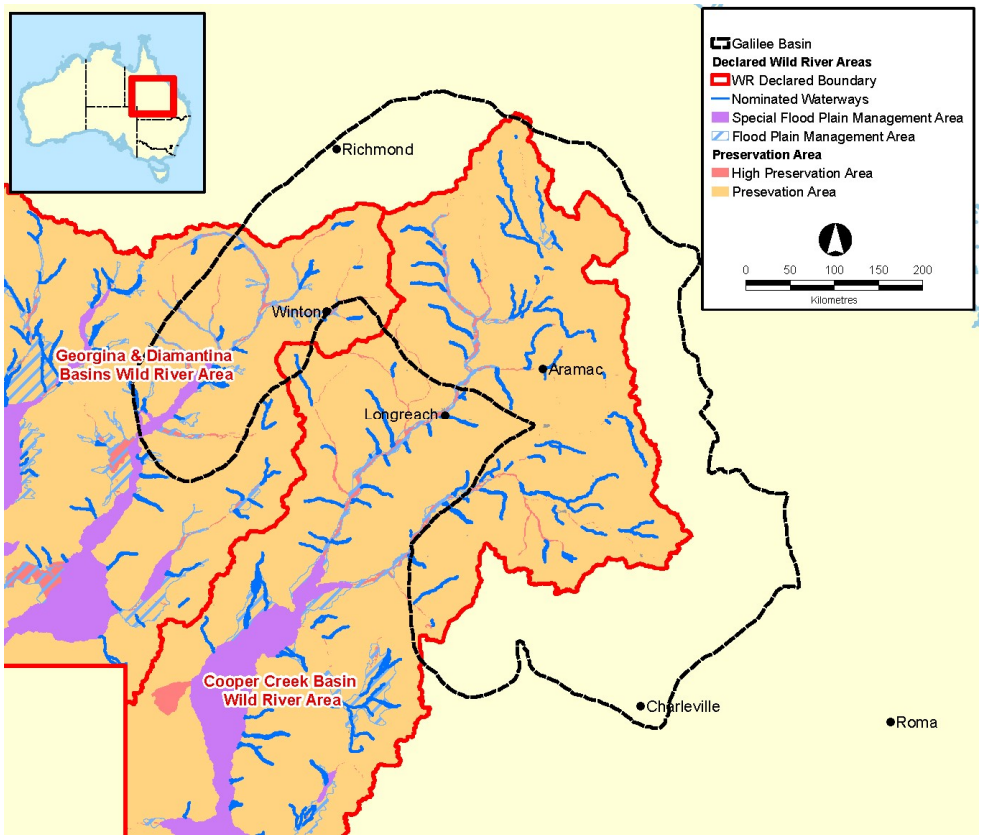

Figure 4 Extent of wild rivers declaration circa 2011, figure courtesy of RLMS

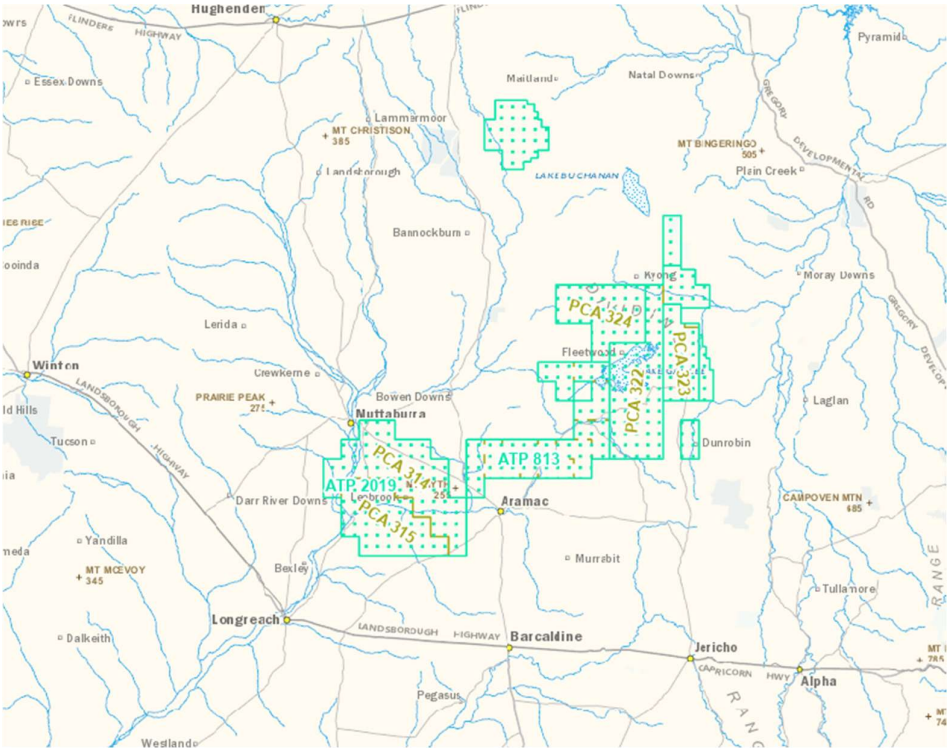

Figure 5 Extent of petroleum tenure in the Galilee Basin, as at December 2022, extracted from GeoResGlobe

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Figures 3 and 4 were prepared by RLMS Pty Ltd, and are used with permission.

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