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Independent Technical Specialist Report

On assets of Telmen Energy Ltd and Tamaska Oil & Gas Ltd

For BDO Corporate Finance (WA) Ltd
on behalf of Tamaska Oil & Gas Ltd

December 2021

Brett Lawrence
Managing Director
Tamaska Oil & Gas Ltd
102 Forrest Street,
Cottesloe, Perth, 6011
Western Australia

Sherif Andrawes
Director
BDO Corporate Finance (WA) Pty Ltd
38 Station Street,
Subiaco, Perth, 6008
Western Australia

21 December 2021

Dear Sirs,

Independent Technical Specialist Report - Tamaska Oil & Gas Ltd and Telmen Energy Ltd.

Tamaska Oil & Gas Ltd ('Tamaska') has engaged BDO Corporate Finance (WA) Ltd ('BDO') to prepare an Independent Expert Report ('IER') for inclusion within a Notice of Meeting to be provided to the shareholders of the company. The shareholders are being asked to approve a proposed transaction of the acquisition of Telmen Energy Ltd ('Telmen') by Tamaska.

As per the instruction letter received from BDO dated 19 November 2021, RISC Advisory Pty Ltd ('RISC') was to provide a market valuation of:

- Tamaska's interest in the Napoleon exploration prospect, Carnarvon Basin, Australia; and
- Telmen's Gurvantes XXXV production sharing agreement ('PSA') in Mongolia.

RISC has completed our independent technical assessment and valuation and our work is documented in this Independent Technical Specialist Report ('ITSR').

Independence

RISC confirms that it is independent of both Tamaska and Telmen and that RISC is unaware of any circumstance which may compromise that independence.

Consent

RISC has consented to this report, in the form and context in which it appears, being included, in its entirety, in the Notice of Meeting.

Table of contents

List of figures

List of tables

1. Executive summary

Tamaska Oil and Gas Limited ('Tamaska') has proposed the acquisition of Telmen Energy Limited ('Telmen').

Telmen through a locally registered and wholly owned subsidiary has been awarded a Production Sharing Agreement ('PSA') for coal bed methane exploration and exploitation over the Gurvantes XXXV area in the South Gobi Basin, Mongolia. Talon Energy Ltd ('Talon') has executed a farm-in agreement with Telmen to earn a 33% participating interest by funding a staged forward work program. This is Telman's only petroleum asset.

A prospective resource assessment for the Gurvantes XXXV PSA was undertaken by Netherland, Sewell and Associates ('NSAI'). RISC has reviewed this resource assessment and considers that some of the parameters used require modification. RISC has therefore made an independent assessment of the Gurvantes XXXV PSA prospective resources.

Tamaska has a beneficial interest in the WA-8-L production license located in the Carnarvon Basin of the Northwest Shelf of Australia. Tamaska acquired a 20% shareholding in Skye Napoleon Pty Ltd ('Skye') which has 100% ownership of the Talisman Deeps Project comprising of the rights to petroleum below 2,700 m in the WA-8-L license incorporating the Napoleon Prospect. This is Tamaska's only petroleum asset.

The Napoleon Prospect is a Jurassic aged, tilted fault block on the eastern flank of the Dampier Sub-basin with predominantly three-way dip closure mapped at the primary and secondary objective levels against a down-to-the-basin fault. Reservoir targets include the primary objective of the Upper Triassic to Lower Jurassic aged sandstones of the North Rankin Formation, and secondary objectives consisting of sandstones of the overlying Jurassic Athol Formation.

ERCE has undertaken an independent prospective resource assessment of the Napoleon Prospect and compiled a comprehensive report detailing its evaluation. RISC has reviewed the evaluation and report and finds the assessment predominantly reasonable. With some reservations regarding the input parameters and the apportionment of on-block resources, RISC accepts the ERCE prospective resource assessment for Napoleon and the Talisman Deeps project.

RISC has determined that the fair market valuation of Telmen's net interest in the Gurvantes XXXV PSA to be between AU$3.8 million and AU$16.2 million with a best estimate of AU$10.3 million (Table 1-1). RISC has assessed a fair market value of Tamaska's net interest in the Talisman Deeps project to be between AU$0.4 million and AU$8.0 million with a best estimate of AU$4.2 million (Table 1-2).

Table 1-1: Gurvantes XXXV PSA valuation net Telmen

Gurvantes XXXV PSA	Valuation (AU$ million)		
	Low	Best	High
Net Telmen	3.8	10.3	16.2

Table 1-2: Talisman Deeps valuation net Tamaska

Talisman Deeps	Valuation (AU$ million)		
	Low	Best	High
Net Tamaska	0.4	4.2	8.0

2. Terms of reference and basis of assessment

2.1. Terms of reference

This Independent Technical Specialist Report ('ITSR') was prepared in response to an instruction letter from BDO received by RISC dated 19 November 2021. BDO was engaged by Tamaska to prepare an Independent Expert Report ('IER') for inclusion in a Notice of Meeting regarding the proposed acquisition of Telmen by Tamaska.

RISC was requested to prepare a market valuation of:

- Tamaska's participating interest in the Talisman Deeps petroleum rights within the WA-8-L license in the Carnarvon Basin, Australia, which contains the Napoleon Prospect, including consideration of any royalties attributable; and
- Telmen's Gurvantes XXXV production sharing agreement ('PSA') asset in the South Gobi Basin, Mongolia, including consideration of any earn in requirements, royalties, and free carried interests on the project.

As per the instruction from BDO, the ITSR is compliant with the Australian Securities and Investments Commission ('ASIC') Regulatory Guides 111 and 112 and includes consent for the report to be included in a Notice of Meeting and for RISC to be named as technical specialist/expert in accordance with ASX listing rule 5.41.

2.2. Basis of assessment

The data and information used in the preparation of this report were provided by Telmen and Tamaska and supplemented with public domain information.

Information and data provided by Telmen:

- Compilation of drill-hole data inclusive of gas analysis
- Storm Cat Energy coal bed methane evaluation report, 2004-05
- Usukh Zoos LLC Khuren Shand mine coal seam gas evaluation report, 2017
- Seismic acquisition and processing report, 2020
- Fluid Energy Consultants prospective resource evaluation report, 2020
- NSAI prospective resources letter, August 2021
- Drill-hole data and images
- Prospecting agreement and unofficial English translations
- PSA documents and unofficial English translations
- Petroleum law, English translation
- Telmen Resource JSC company certificate and constitution (English translation)
- Telmen Energy Ltd investor presentation, September 2021
- Telmen Resource JSC Central Nariin Sukhait field development concept presentation, August 2020

Information and data provided by Tamaska:

- Compilation of offset well data, including petrophysical analyses
- DUG reprocessing report of Panaeus 3D, 2021
- Seismic inversion and quantitative interpretation report in PowerPoint format, 2021
- Geochemical and basin modelling report in PowerPoint format, 2021
- ERCE Napoleon Prospect Technical Report, dated 28 September 2021

- Napoleon Prospect farm-out technical presentation
- Two-way-time ('TWT') and depth structure grids
- Napoleon Prospect well concept and drilling cost estimate document, dated 23 March 2021

RISC has relied upon the Talon Energy Ltd release to the ASX on 3 February 2021 regarding the farm-in agreement to the Gurvantes XXXV PSA.

RISC has relied upon information as provided in the Tamaska release to the ASX on 22 February 2021 regarding the WA-8-L Talisman Deeps transaction.

RISC has relied upon the information provided and has undertaken the evaluation on the basis of a review and audit of existing interpretations and assessments as supplied, making adjustments that in our judgment were necessary.

RISC has reviewed the reserves/resources in accordance with the Society of Petroleum Engineers internationally recognised Petroleum Resources Management System ('PRMS')[1].

For the Gurvantes XXXV PSA RISC's methodology was to review and verify a probabilistic resource evaluation carried out by NSAI on behalf of Talon. Following this review and given the lack of supporting documentation to the NSAI assessment, RISC found it appropriate to modify some of the inputs to conform to our views and update the resource estimation which is included in this report.

For the Talisman Deep asset RISC's methodology was to review the probabilistic resource evaluation report and verify the assessment of the Napoleon Prospect carried out by ERCE on behalf of Tamaska. With some reservations, which are documented within this report, RISC accepts the ERCE prospective resource assessment as reasonable.

Details of the findings of our review and the resource estimation process are presented in this report. Unless otherwise stated, all resources presented in this report are gross (100%) quantities.

RISC has not conducted a site visit and does not consider one necessary.

2.3. Valuation

The valuation is based on the principles of the VALMIN Code[2] and the concept of "market value" ('Value').

The VALMIN Code defines Value as the estimated amount of money (or the cash equivalent of some other consideration) for which the Mineral Asset should exchange on the date of valuation between a willing buyer and a willing seller in an arm's length transaction wherein the parties each acted knowledgeably, prudently and without compulsion. For the purposes of this report, we have applied these definitions to petroleum properties.

[1] Petroleum Resources Management System, prepared by the Oil and Gas Reserves Committee of the Society of Petroleum Engineers (SPE) and reviewed and jointly sponsored by the American Association of Petroleum Geologists (AAPG), World Petroleum Council (WPC), Society of Petroleum Evaluation Engineers (SPEE), Society of Exploration Geophysicists (SEG) and approved by the Board of the SPE in March 2007. The PRMS was subsequently updated in June 2018.

2 The VALMIN Code sets out requirements for the technical assessment and valuation of mineral assets and securities for independent expert reports, it provides guidance for petroleum assets and securities. The VALMIN Committee is a joint committee of The Australasian Institute of Mining and Metallurgy (AusIMM) and the Australian Institute of Geoscientists. The committee was established to develop and maintain the "Australasian Code for Public Reporting of technical assessments and valuations of mineral assets", commonly known as the VALMIN Code. The VALMIN Code was first published in 1995, with subsequent editions published in 1997, 2005 and 2015

A range of oil and gas industry accepted practices in relation to petroleum properties has been considered to determine Value, which are described below.

2.3.1. Comparable transaction metrics

An estimate of the Value of petroleum properties can be obtained using recent comparable transactions. Such transactions may provide relevant metrics such as Value per unit of reserves, contingent or prospective resources and price paid per unit area of the permit/license or % interest. The VALMIN Code advises Value must also take into account risk and premium or discount relating to market, strategic or other considerations.

2.3.2. Sunk costs and work program

The sunk costs and costs of a future work program may also be used to estimate Value. The work program valuation relies on the assumption that unless there is evidence to the contrary the permit is worth what a company will spend on it. This method is relevant for permits in the early stages of exploration and for expenditure which is firmly committed as part of a venture budget or as agreed with the government as a condition of holding the permit. There may need to be an adjustment for risk and the time value of money.

Results as the work program progresses, will alter the perceived value. Therefore, the original work program agreed may no longer represent today's Value.

2.3.3. Farm-in promotion factors

Alternatively an estimate of Value can be based on an estimation of the share of future costs likely to be borne by a reasonable farminee under prevailing market conditions. A premium or promotion factor may be paid by the farminee. The promotion factor is defined as the ratio of the proportion of the activity being paid for and the amount of equity being earned.

The nominal permit value is defined as the amount spent by the farminee divided by the interest earned. The premium value for the permit is the difference between the nominal value and the equity share of the cost of the activity divided by the equity interest being earned.

The premium or promotion factor will be dependent upon the perceived prospectivity of the property, competition and general market conditions. The premium value is equivalent to the farminee paying the farminor a cash amount in return for the acquisition of the interest in the permit and is the fair market value.

Farm-in transactions may have several stages. For example, a farminee may acquire an initial interest by committing to a future cost in the first stage of the transaction but has an option to acquire an additional interest or interests in return to committing to funding a further work program or programs.

Farm-in agreements can also include re-imbursement of past costs and bonus payments once certain milestones are achieved, for example declaration of commerciality, or achieving threshold reserves volumes. Depending on their conditionality, such future payments may contribute to Value. However, they may need to be adjusted for the time value of money and probability of occurring.

2.3.4. Expected monetary value

Expected monetary value ('EMV') is the risked net present value ('NPV') of a prospect or project. EMV is calculated as the success case(s) NPV times the probability of success and development less the NPV of failure cases multiplied by the probability of failure. The NPV may be estimated using discounted cash flow

('DCF') methods. The EMV method provides a representative estimate of Value in areas with a statistically significant number of mature prospects or projects within proven commercial hydrocarbon provinces where the chance of success and volumes can be assessed with a reasonable degree of predictability. EMV is appropriate to discovered hydrocarbons where development details and costs are mature. As such RISC does not consider EMV is appropriate for this situation.

The EMV valuation can also be used as a relative measure for ranking exploration prospects within a portfolio to make drilling decisions, assessing commercial potential and to demonstrate the commercial attractiveness of a permit, which may influence a buyer or seller.

3. Introduction

3.1. Telmen Energy Ltd Gurvantes XXXV asset

Telmen Energy Limited ('Telmen'), through a locally registered and wholly owned subsidiary (Telmen Resource JSC), has been awarded a Production Sharing Agreement ('PSA') for coal bed methane exploration and exploitation over the Gurvantes XXXV licence in the South Gobi Basin, Mongolia (Figure 3-1, Table 3-1).

Talon Energy Ltd ('Talon') has executed a farm-in agreement with Telmen to earn a 33% participating interest by funding the staged forward work program up to the amount of US$4.65 million.

Figure 3-1: Gurvantes XXXV location map

Table 3-1: Gurvantes XXXV asset summary

Asset		Operator	Telmen Working Interest	Status	Licence expiry date	Licence area (km^2)	Comments
Country	Block						
Mongolia	Gurvantes XXXV	Telmen	100%	Exploration	26 July 2031	8,398.6	Talon has executed a farm-in agreement for 33% (3 Feb 2021)

Notes to the table:

1. Telmen current working interest is 100%. Telmen working interest post completion of Talon farm-in will be 67% (Talon earning 33%).
2. PSA contractor is Telmen Resource JSC, a wholly owned subsidiary of Telmen Energy Ltd

Other coal seam gas project assets are located in the South Gobi Basin nearby the Gurvantes XXXV PSA (Figure 3-2). These include assets controlled by Petrovis Resources a Mongolian company, and Elixir Energy and Jade Gas both listed on the Australian Securities Exchange ('ASX').

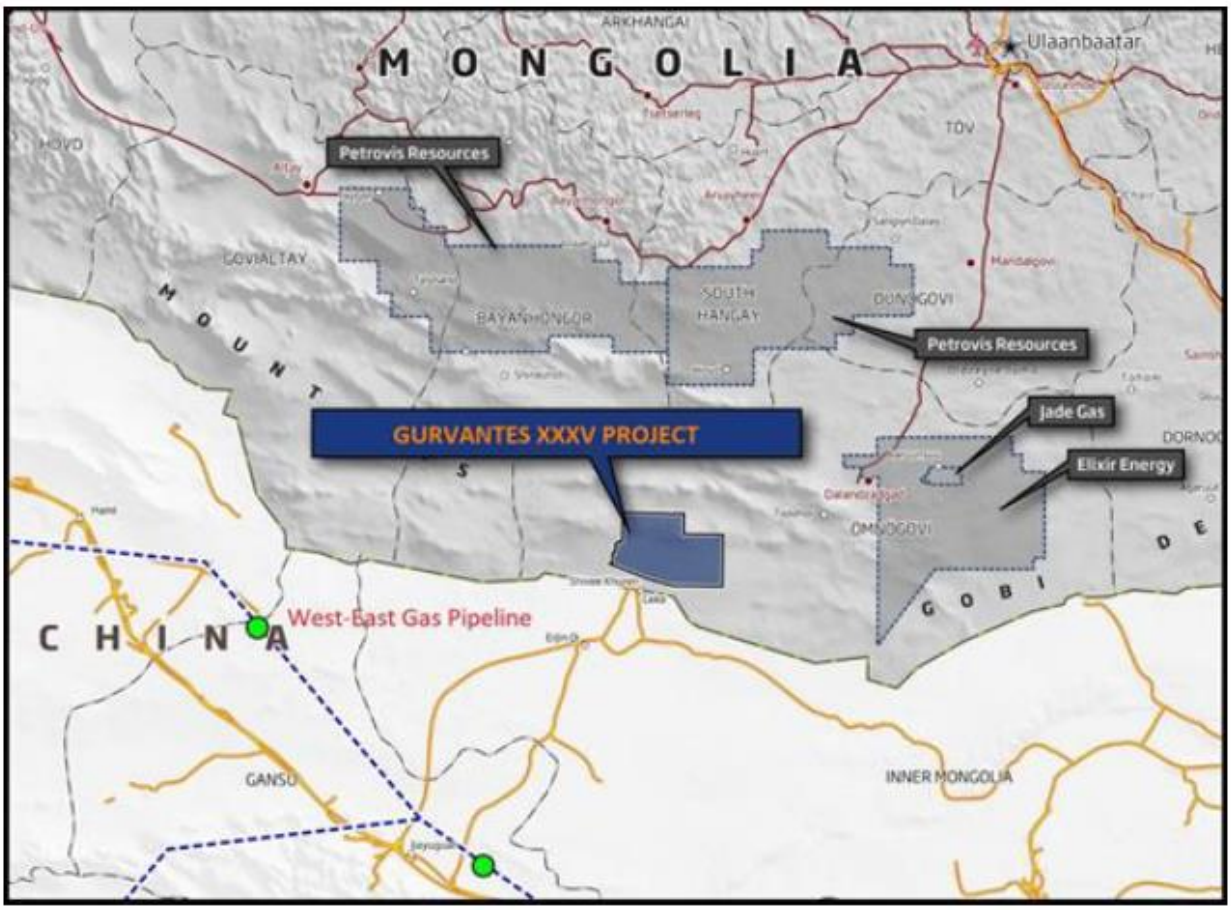

Figure 3-2: South Gobi Basin coal seam gas project location map

A 2D seismic program consisting of 20 km of data was completed by Telmen in 2020. The forward work program consists of exploration drilling and the planned establishment of pilot production.

3.2. Tamaska Oil & Gas Ltd Talisman Deeps asset

Tamaska Oil and Gas Limited ('Tamaska') has a beneficial interest in the WA-8-L production license located in the Carnarvon Basin of the Northwest Shelf of Australia. Tamaska acquired a 20% shareholding in Skye Napoleon Pty Ltd ('Skye') which has 100% ownership of the Talisman Deeps Project comprising of the rights to petroleum below 2,700 m in the WA-8-L license.

The title to the WA-8-L license is held by Kato NWS Pty Ltd (Operator) and Kato Amulet Pty Ltd, a group of companies wholly owned by Skye Energy Ventures. This joint venture acquired the license from the previous titleholders, Santos, Tap Oil and KUFPEC in 2019.

The WA-8-L production license was originally awarded in 1988 for the development of the Talisman oil field. This field has now been produced and abandoned. The Amulet oil pools were subsequently discovered in 2006 and have not been developed. Tamaska does not have a beneficial interest in the Amulet oil pools.

The license was last renewed in 2010 for a further 21-years. Although the license is a production license awarded under the Offshore Petroleum and Greenhouse Gas Storage Act ('OPGGSA') for the original development of Talisman, it is now viewed as a petroleum exploration license.

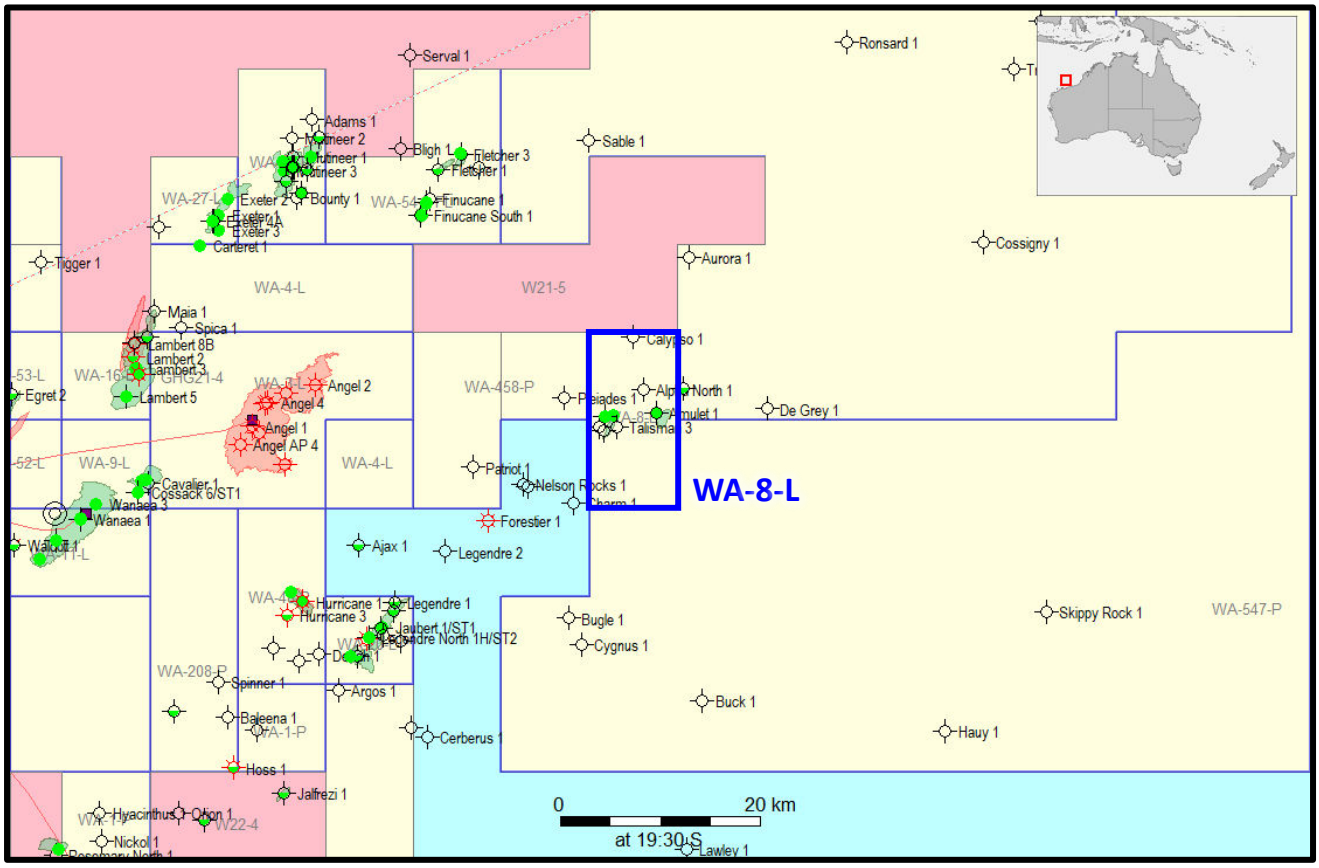

Figure 3-3: WA-8-L license and Talisman Deeps location map

Table 3-2: Talisman Deeps asset summary

Asset		Operator	Telmen Working Interest	Status	Licence expiry date	Licence area (km^2)	Comments
Country	Block						
Australia	WA-8-L	Kato NWS	20%	(Production) Exploration	7 November 2031	161	Skye has 100% ownership of petroleum rights below 2,700 m ('Talisman Deeps')

Notes to the table:

1. Tamaska has acquired 20% shareholding in Skye Napoleon Pty Ltd ('Skye') which owns 100% of the petroleum rights below 2,700 m in the WA-8-L license ('Talisman Deeps').
2. Tamaska has the right to convert its 20% shareholding to a 20% direct interest in the Talisman Deeps petroleum rights.
3. Tamaska and Skye are not titleholders of the WA-8-L license.

4. Regional information

4.1. South Gobi Basin

The South Gobi Basin covers an area of 40,000 km^2 in the Gobi Desert of southern Mongolia extending 600 km in an east – west orientation (Figure 4-1). The basin is a complex terrane of Carboniferous to Cretaceous sediments formed in a foreland basin setting within the Central Asian Orogenic Belt, with a Quaternary cover. Due to the orogenic setting, the South Gobi Basin is structurally complex and deep-seated faults segregate the basin into several sub-basins.

The South Gobi Basin is host to significant bituminous coal resources in the Jurassic to Upper Permian section. However, the coals are not uniformly distributed throughout the basin due to the structural complexity. The coals range in rank from sub-bituminous to medium-volatile bituminous[3].

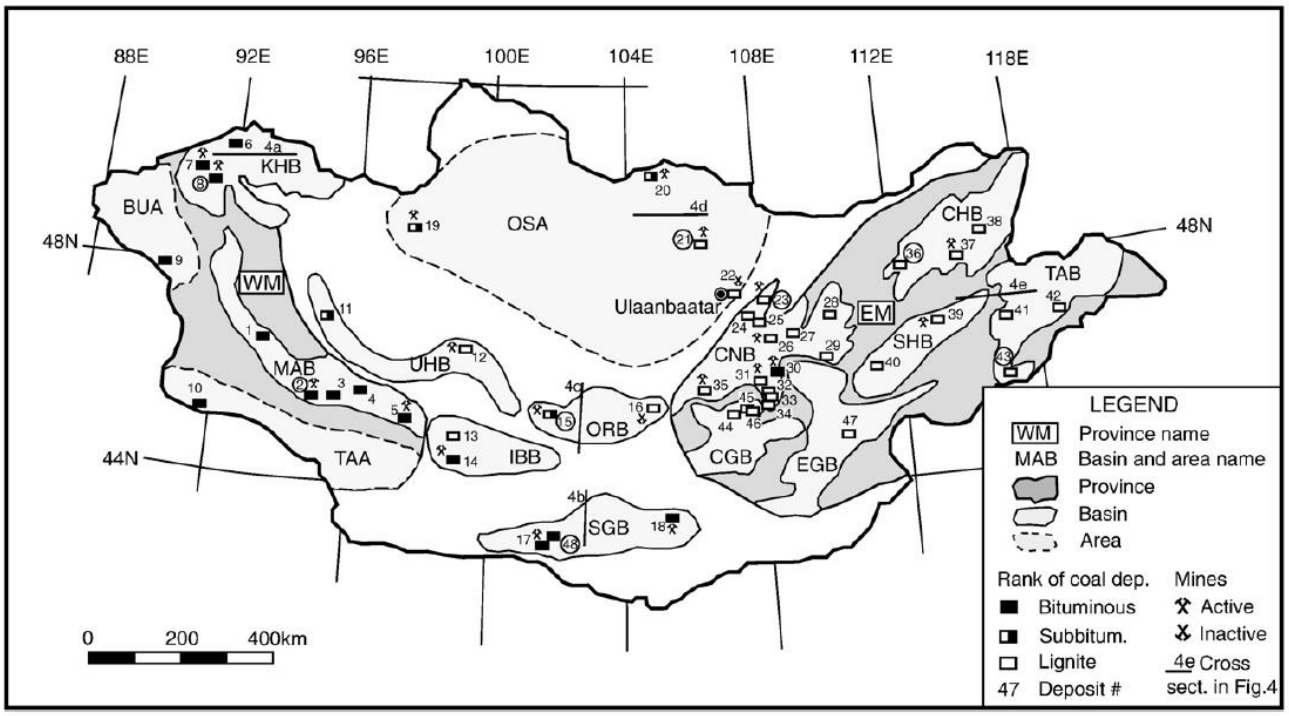

Figure 4-1: South Gobi Basin (SGB) location map[4]

4.1.1. Coal seam gas exploration in the South Gobi Basin

Coal seam gas exploration within the South Gobi Basin is at a very early stage and key resource parameter data are limited.

Telmen has access to an extensive database of coal exploration drill-holes, including analysis from six drill-holes drilled specifically for coal seam gas evaluation purposes. Some information on gas content and composition is available to Telmen from these drill-holes.

[3] Mongolian Nature and Environment Consortium (2014), Coal Mine Methane (CMM) Resource Assessment and emissions Inventory Development in Mongolia.

[4] Erdenetsogt, B-O., Lee, I., Bat-Erdene, D., Jargal, L. (2009). Mongolian coal-bearing basins: Geological settings, coal characteristics, distribution and resources. International Journal of Coal Geology (80), pp87-104.

Elixir Energy Ltd ('Elixir') is undertaking a work program in its Nomgom IX PSA (Figure 3-2) and has publicly released some information with respect to coal permeability, gas content and saturation[5]. RISC has not verified the integrity of the data contained in these announcements.

To RISC's knowledge, information and data regarding *in situ* stress, pressure and temperature data are not publicly reported from any wells drilled within the basin. *In situ* stress is a key parameter in determining well productivity and consequent development plans. Given that this and other coal seam gas projects in country are relatively immature and at the early stage of exploration, there is significant uncertainty around deliverability and this is included in our technical assessment and consequent valuation.

4.1.2. Gurvantes XXXV area geological setting

The Gurvantes area is dominated by an east – west orientated 'basin and range' setting. Mountain ranges comprise predominantly crystalline, meta-sediment and Paleozoic basement terrains with intervening sedimentary basins consisting of Cretaceous to Permian aged sediments. A Quaternary cover of fluviatile to aeolian deposits is extensive. A geological map of the Gurvantes area is shown in Figure 4-2.

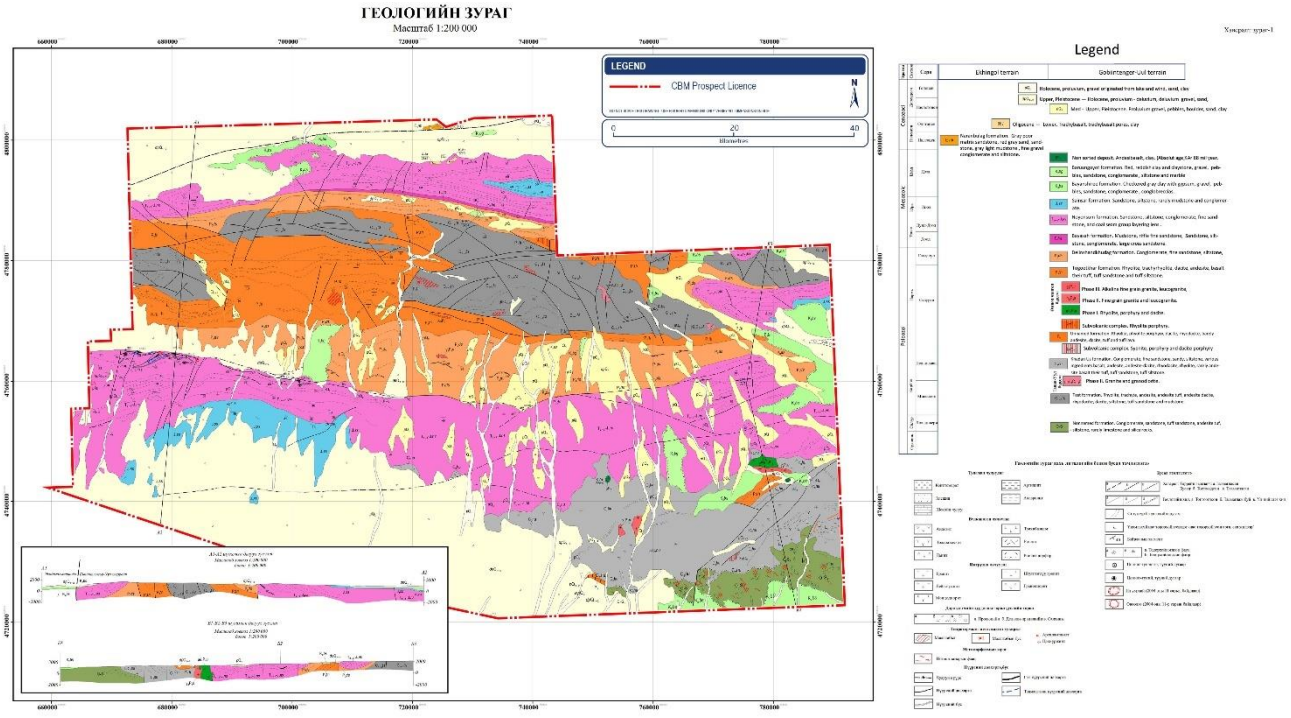

Figure 4-2: Gurvantes area geological map[6]. Refer Figure 2-2 for locality.

The central-northern portion of the Gurvantes area is dominated by the Tost Mountain Range, which consists dominantly of uplifted Paleozoic basement. To the north is the Noyon Uul Syncline with a complete section of Triassic sediments of some 3,000 m thickness[7]. To the south is an extensive belt 7 to 15 km wide of coal bearing Permian to Triassic sediments orientated east – west extending 160 km across the Gurvantes XXXV

[5] Elixir Energy ASX announcements: 26 February 2020, 8 July 2020 and 20 August 2020.
[6] Lkhundev, Sh., Zayabazar, Ts., Buyanbataar. Ch. (2013). Complex maps of SW Mongolia, UGZ 200 State Project.
[7] Stormcat Energy Corporation (2005). Noyon Mongolia CBM Project, Noyon West Exploration Report 2004-2005.

PSA. The northern boundary of this belt is a thrust fault with the Nariin Sukhait coal deposits exposed in the overthrust hanging wall.

Coal bearing sequences are well exposed in the west and central portion of the PSA and dip to the south. Extensive coal mining operations exist in this area. To the east coal bearing equivalent sequences of Nariin Sukhait are less exposed with an extensive Quaternary cover and possess shallower southerly dips. To the north - east exposures are common but the coal bearing sequences are generally obscured by extensive Quaternary cover consisting of fluvial and floodplain deposits.

RISC notes that the coal bearing sequences are commonly referred to as Permian in age and assigned to the Tavantolgoi Group, however the geological map in Figure 4-2 assigns a Triassic age. The Permian stratigraphy of the Gurvantes area is shown in Figure 4-3.

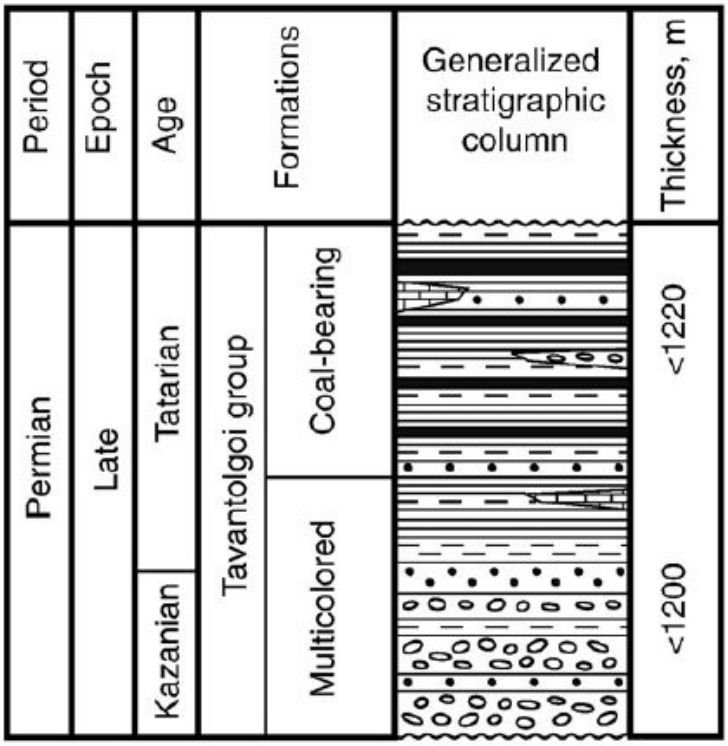

Figure 4-3: Gurvantes area Permian stratigraphic column [8]

The Tavantolgoi Group coal bearing sequences are 215 – 1,220 m thick and contain up to fourteen coal seams ranging from 0.5 to 7 m in thickness and one 20 to 50 m thick seam[9]. Telmen has broadly subdivided the seams into an upper and lower group.

In the Narin Sukhait the seams are locally thickened with localised structuration and are up to 90 m thick[9].

[8] Erdenetsogt, B-O., Lee, I., Bat-Erdene, D., Jargal, L. (2009). Mongolian coal-bearing basins: Geological settings, coal characteristics, distribution and resources. International Journal of Coal Geology (80), pp87-104.
[9] Stormcat Energy Corporation (2005). Noyon Mongolia CBM Project, Noyon West Exploration Report 2004-2005.

4.2. Northern Carnarvon Basin

The Northern Carnarvon Basin is a large, mainly offshore basin on the northwest shelf of Australia encompassing the Exmouth Plateau, Wombat Plateau (on the northern part of the Exmouth Plateau), Investigator Sub-basin, Rankin Platform, Exmouth Sub-basin, Barrow Sub-basin, Dampier Sub-basin, Beagle Sub-basin, Enderby Terrace, Peedamullah Shelf and the Lambert Shelf (Figure 4-4). The basin is Australia's premier hydrocarbon province.

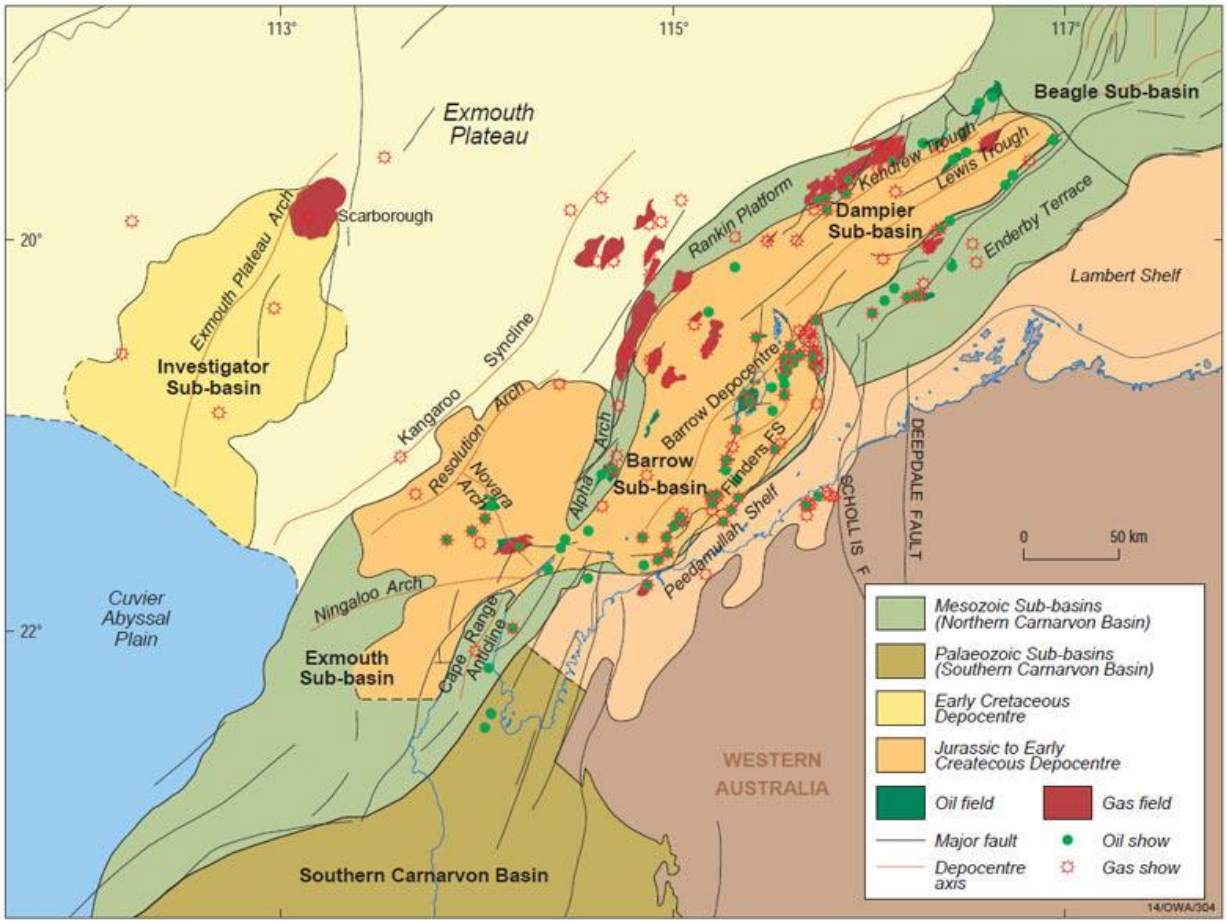

Figure 4-4: Northern Carnarvon Basin location [10]

4.2.1. Talisman Deeps geological setting

The Talisman Deeps petroleum rights project is located within the WA-8-L license in the Dampier Sub-basin of the Northern Carnarvon Basin (Figure 4-5).

The Dampier Sub-basin is a deep linear north-east trending trough of Triassic, Jurassic and Cretaceous sediments [11]. The sub-basin is bound on its western flank by the Kendrew Terrace and the tilted fault blocks of the Rankin Trend, and in the east by the Rosemary Fault system.

[10] Geoscience Australia. Available at http://www.ga.gov.au/scientific-topics/energy/province-sedimentary-basin-geology/petroleum/offshore-northwest-australia/canarvon

[11] Woodside Petroleum. (1988). A Review of the Petroleum Geology and Hydrocarbon Potential of the Barrow-Dampier Sub-basin and Environs. The North West Shelf Australia. Edited by PG & RR Purcell.p115-128.

The WA-8-L license is located on the eastern margin of the Dampier Sub-basin, at the northern edge of the Rosemary Fault system.

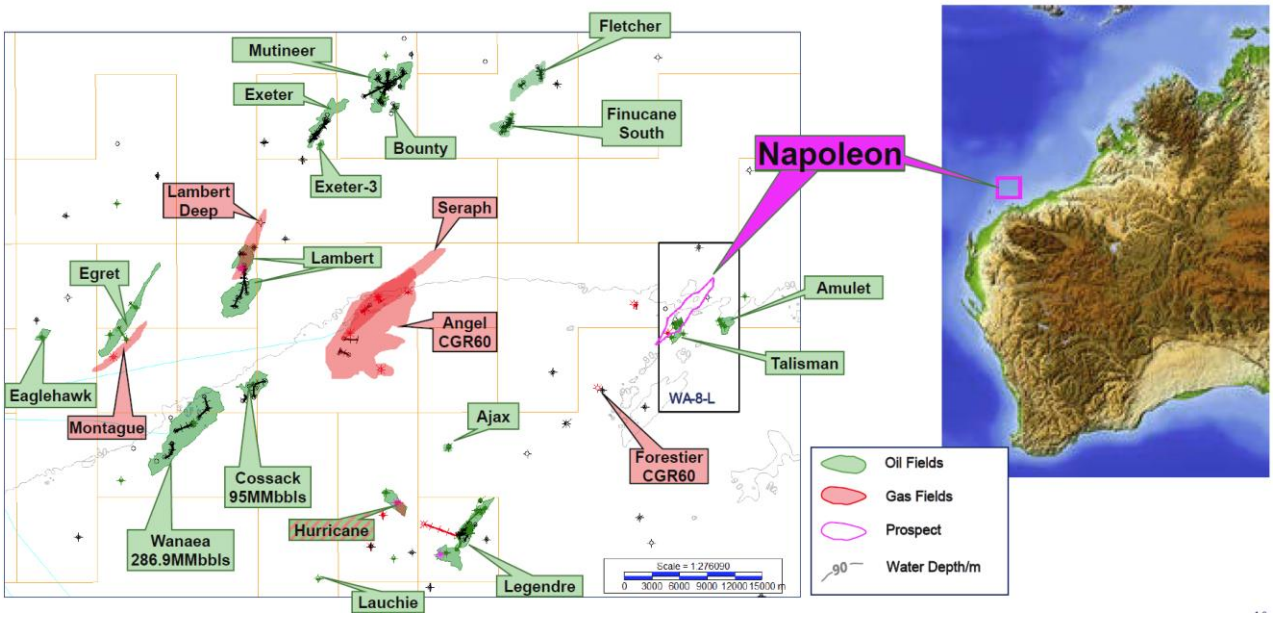

Figure 4-5: Location map for WA-8-L license, Talisman Deeps project and the Napoleon prospect (Tamaska)

The Napoleon prospect is a mid-Jurassic aged, tilted fault block containing three-way dip closure against a down-to-the-west fault. Closure is mapped in the lower Jurassic with the primary target being the proven reservoir of the North Rankin Formation and the secondary targets of the Athol Formation (Figure 4-6).

The North Rankin Formation consists of Interbedded sandstones and shales, generally coarsening-up, and clean blocky 20 to 30 m thick sandstones with sharp boundaries and poorly defined fining-upwards character which were deposited in a fluvial to marginal marine setting [12].

It is interpreted by Tamaska that the Talisman Deeps project and the Napoleon Prospect are located in the terrestrial to marine transition for the depositional setting of the North Rankin Formation. High net-to-gross fluvial dominated section is seen in the De Grey-1 well 15km to the east and lower net-to-gross sections are noted in wells of the Rankin Trend in the west.

The petroleum play of North Rankin Formation reservoir of closure related to tilted fault blocks with a Murat / Athol Formation top-seal is a proven play in the Dampier Sub-basin. Petroleum pools in the Lambert Deep, Reindeer, Gnu and Gaea fields are found in this play.

In addition, the Seraph-1ST1 well 32km to the west of the Napoleon prospect is a key well. Drilled in 2011 to test the Lower Jurassic hydrocarbon potential of the primary target North Rankin Formation, intersected low saturation gas within poor quality reservoir. Additional low saturation gas was intersected in sandstone units of the *D. complex* biozone of the Athol Formation and *C. turbatus* biozone of the Athol Formation [13].

[12] Geoscience Australia, Australian Stratigraphic Units Database
[13] Woodside (2012) Seraph-1 & Seraph-1ST1 Final Well Completion Report.

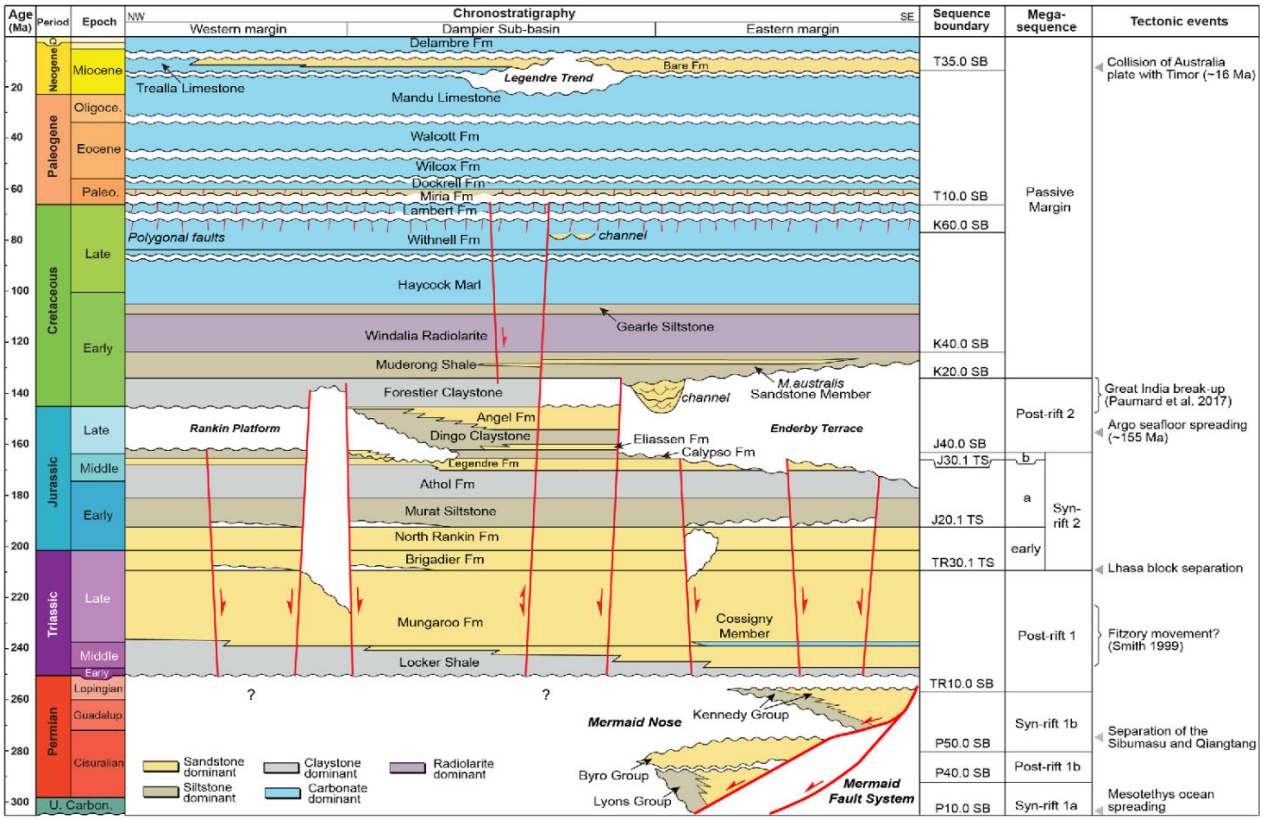

Figure 4-6: Simplified tectono-stratigraphic chart of the Dampier Sub-basin[14]

[14] Deng H. and McClay K. (2019) Tectono-stratigraphy of the Dampier Sub-basin, North West Shelf of Australia. Geological Society, London, Special Publications, 476, p259-285.

5. Gurvantes XXXV PSA

Telmen Energy Ltd ('Telmen') has been awarded a Production Sharing Agreement ('PSA') over the Gurvantes XXXV licence in the South Gobi Basin, Mongolia (Figure 3-1, Table 3-1). The PSA has been awarded by the Mineral Resources and Petroleum authority of Mongolia ('MRPAM') as the Mongolian government regulator and is dated 27 July 2021. The PSA contractor is Telmen Resource JSC which is a wholly owned and locally registered entity of Telmen Energy Ltd.

Telmen previously held a prospecting agreement over the area which was awarded on 21 January 2019.

Talon Energy Ltd ('Talon') has executed a farm-in agreement with Telmen to earn a 33% participating interest by funding the 2021 – 2022 work program up to the amount of US$4.65 million. RISC has assumed that as this work program has not yet commenced, that Talon funding has commensurately also not commenced.

The PSA and an unofficial English translation were made available to RISC. An unofficial translation of the petroleum law of Mongolia was also provided. RISC has reviewed the PSA terms and can confirm they are generally in line with other global petroleum producing regimes, are comparable with other PSA terms in Mongolia, and can be considered in line with accepted industry standards.

Key terms of the PSA are presented in Table 5-1. The PSA can be extended as required (up to 5-years) and renewed at the end of the exploration term. Petroleum exploitation licence(s) can be granted for a period of 30-years.

Table 5-1: Gurvantes XXXV PSA terms

Initial term	10-years, in phases of 4-years + 4-years + 2-years
Signature bonus	US$ 50,000
Training, Administration & Local Development fees	US$ 90,000/year
Annual Licence Fees	US$ 3/km^2 per annum (US$ 25,200/year) gross
Royalty	State royalty. Industry standard [15]
Production split	Industry standard [16]
Minimum work program commitments	Annual

Telmen and Talon in conjunction with the farm-in agreement have negotiated and executed a Joint Operating Agreement ('JOA') which will govern the Gurvantes XXXV PSA Joint Venture.

[15] Royalty rates in the hydrocarbon extraction industry globally typically range from 0-15%

[16] Production splits in the hydrocarbon extraction industry globally typically range from 20-50%, but in some regimes gov't take can exceed 50%.

5.1. Work program and commitments

A summary of the work program commitments for the Gurvantes XXXV PSA are shown in Table 5-2.

Table 5-2: Gurvantes XXXV PSA work program

Exploration Period	Years	Work Program Summary	Minimum Expenditure US$ Million
Initial Phase	1 - 4	Geological studies, drilling of drill-holes, drilling of a pilot well and seismic acquisition	1.7
Second Phase	5 - 8	Geological studies, drilling of drill-holes, drilling of pilot wells and seismic acquisition	3.7
Third Phase	9 - 10	Geological studies, drilling of drill-holes, 3D seismic acquisition, pilot production testing, feasibility study	3.6

The initial work program as advised by Telmen is to be focussed on drilling in the Nariin Sukhait central area, with a view to establishing pilot production and a future contingent resource assignment.

The Talon farm-in specifies a staged work program[17]:

- Stage 1 to be conducted December 2021 – April 2022 is the drilling of 4 drill-holes with comprehensive analysis. Following completion of Stage 1, Talon can elect to participate and fund Stage 2.
- Stage 2 is planned to be conducted August – November 2022 and nominally consists of a pilot well program.

RISC's opinion is that the proposed work program is reasonable and represents an acceleration of the work program specified in the PSA.

5.2. Overlapping tenure

Several coal mining licences with active coal mining operations are within the Gurvantes XXXV PSA (Figure 5-1). Active operations are primarily within the Nariin Sukhait field area (Khuren Shand, MAK Mines and Ovoot Tolgoi).

RISC notes that the proposed work program drill-holes and potential pilot production well(s) are to be drilled within existing mining licences and close to operational coal mines. Under the applicable Petroleum Law, Telmen has the right to undertake activities within the PSA. However, there is no framework or guidelines for coordination of mining and petroleum activities other than the requirement that they not impede each other.

Telmen advises that it has had preliminary and cordial discussions with the owners of the mining licences and operators of the open cut mines regarding access and coordination. However, RISC notes that a formal access

[17] Talon Energy Ltd ASX release 3 February 2021

and coordination agreement has not yet been executed between the Gurvantes XXXV PSA joint venture and the mining entities.

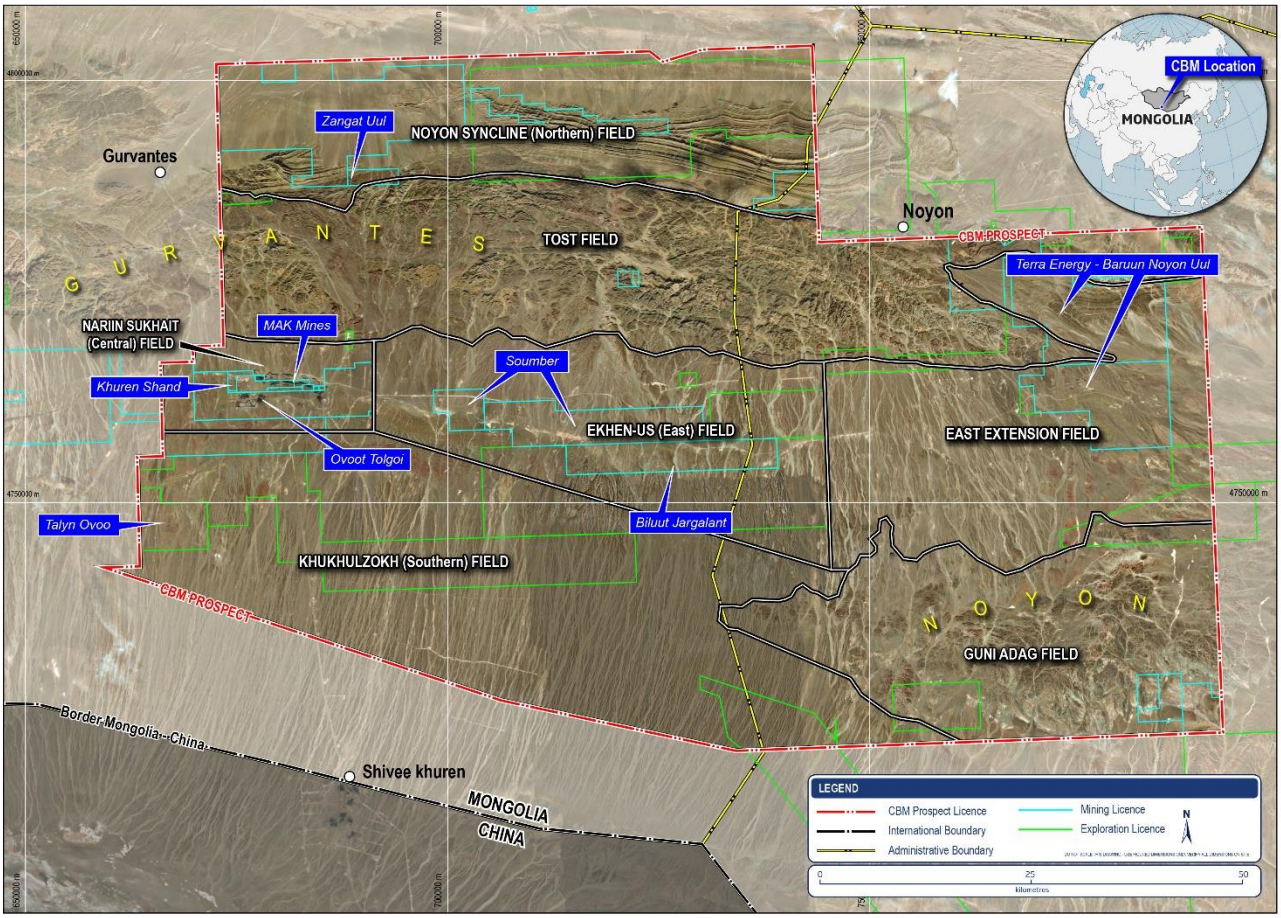

Figure 5-1: Coal field sub-division, mining licences and mining exploration areas within Gurvantes XXXV PSA

5.3. Field areas and regions

The Gurvantes XXXV PSA has been subdivided into coal field areas by Telmen and these are shown in Figure 5-1 (note the coal mining and coal exploration licenses shown). These field areas have been further subdivided into regions for resource estimation. For example, the Nariin Sukhait and Enkhen-Us coal fields are subdivided into west, central and eastern regions. This subdivision is shown in Figure 5-2.

5.4. Data

Telmen has access to an extensive database of coal exploration drill-holes, coal seam gas drill-holes and seismic data. These data are addressed as follows and are shown in Figure 5-3.

5.4.1. Coal data

There is active open cut coal mining in the Khuren Shand and Nariin Sukhait areas. Telmen has access to an extensive database of coal exploration and coal seam gas drilling in the Khuren Shand, Nariin Sukhait and Enkhen coal field areas. RISC is aware that some of the information is provided under data sharing agreement, whilst other data is publicly available.

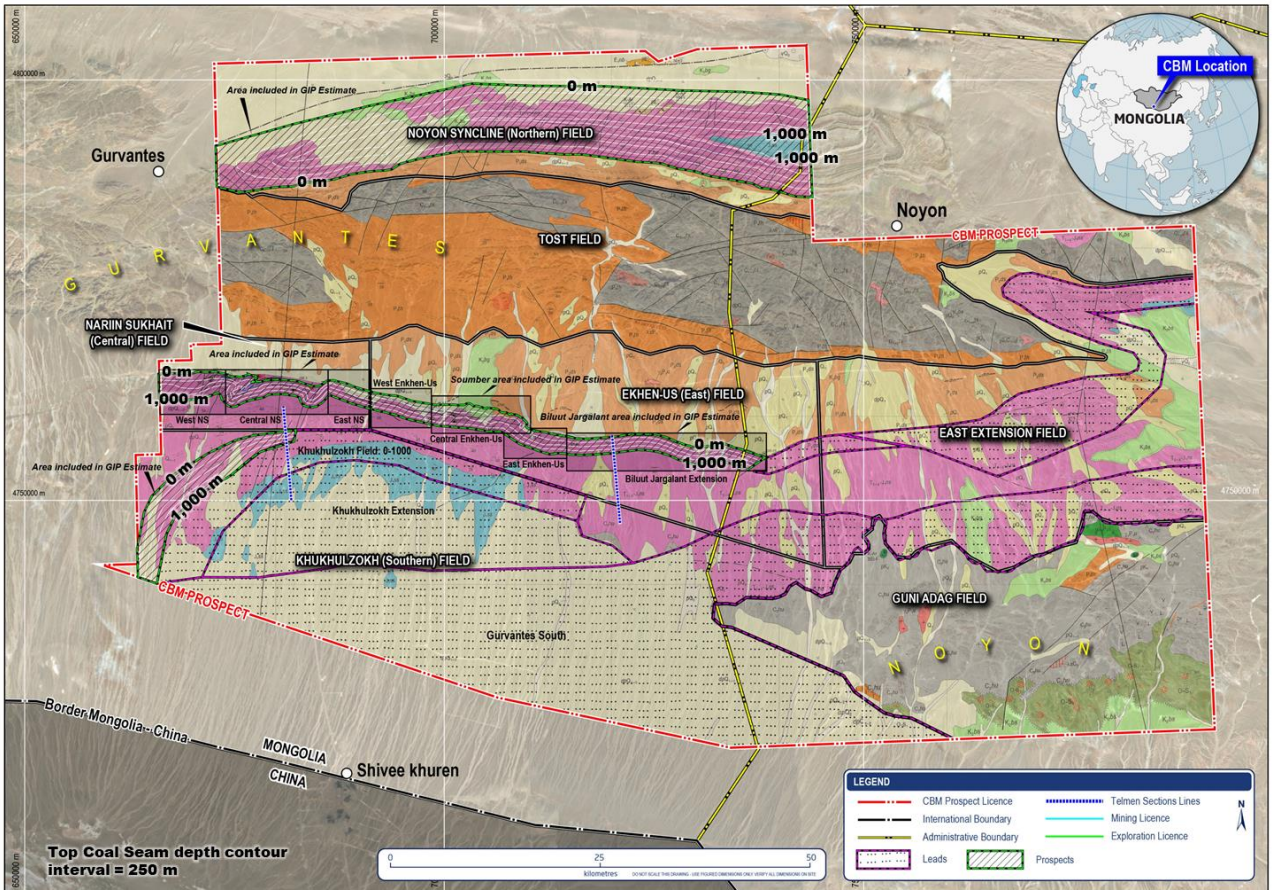

Figure 5-2: Gurvantes XXXV PSA field sub-division with top coal seam depth contours annotated (Telmen)

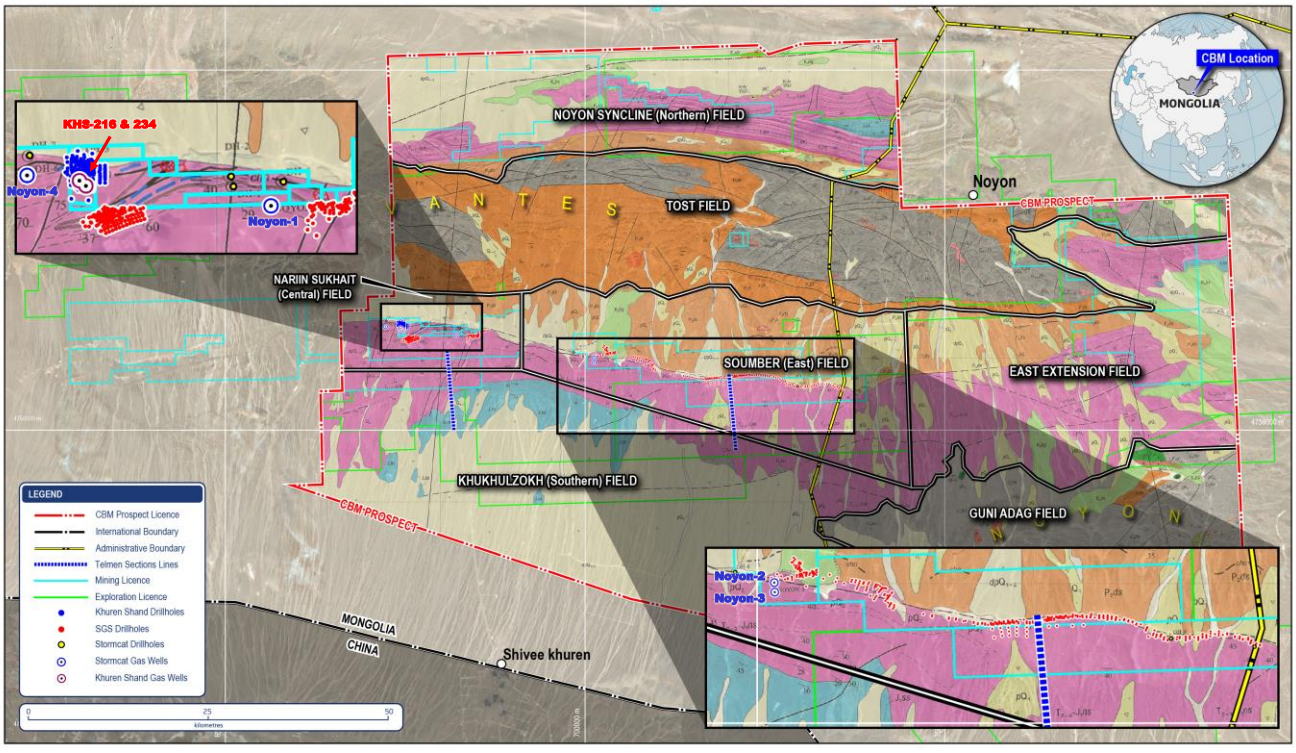

Figure 5-3: Gurvantes XXXV PSA drill-hole and seismic dataset (Telmen)

Drill-holes in the database compiled by Telmen are mostly shallower than 500 m vertical depth, less than 50 holes are greater than 500 m vertical depth and only 3 are greater than 800 m vertical depth. These drill-holes are primarily a combination of air-drilled rotary chip and core-holes with seven holes drilled for coal seam gas evaluation purposes. A sample database of coal analyses such as ash content, and density is available from a subset of the drill-holes. RISC has not reviewed the entire original dataset and analysis, however based on its review RISC considers the data and its analysis as reasonable.

5.4.2. Coal seam gas data

A coal seam gas exploration program was conducted by StormCat Energy Corporation in 2004 – 2005 which at the time held exploration leases over the Gurvantes XXXV area. The exploration program consisted of geological mapping, the drilling of shallow core holes and the drilling of five coal seam gas wells. Four of these wells, Noyon – 1 to 4 were drilled in the Nariin Sukhait area. Noyon-2 did not intersect any coal. Gas desorption data is available from these wells.

Two coal seam gas wells were drilled in the Khuren Shand mining licence by Usukh Zoos LLC in 2016. Gas desorption and gas composition data are available for the two wells, KH16-216 and 224. This is discussed further in Section 4. Only one adsorption sample (from the StormCat Noyon-1 well) is available to Telmen. This is discussed further in Section 5.5.

5.4.3. Seismic

Telmen acquired two seismic lines totaling 20 km in total line length in February 2020. The lines are located in the western part of the licence area, with line 2 being immediately to the south of the open-cut mine workings in the Nariin Sukhait area, and line 1 being over the Enkhen east area (Figure 5-3 and Figure 5-4).

RISC has viewed the uninterpreted two-way-time sections and confirms that the overall stratigraphic section can be seen to be dipping to the south. Telmen is yet to incorporate the seismic data into its evaluation.

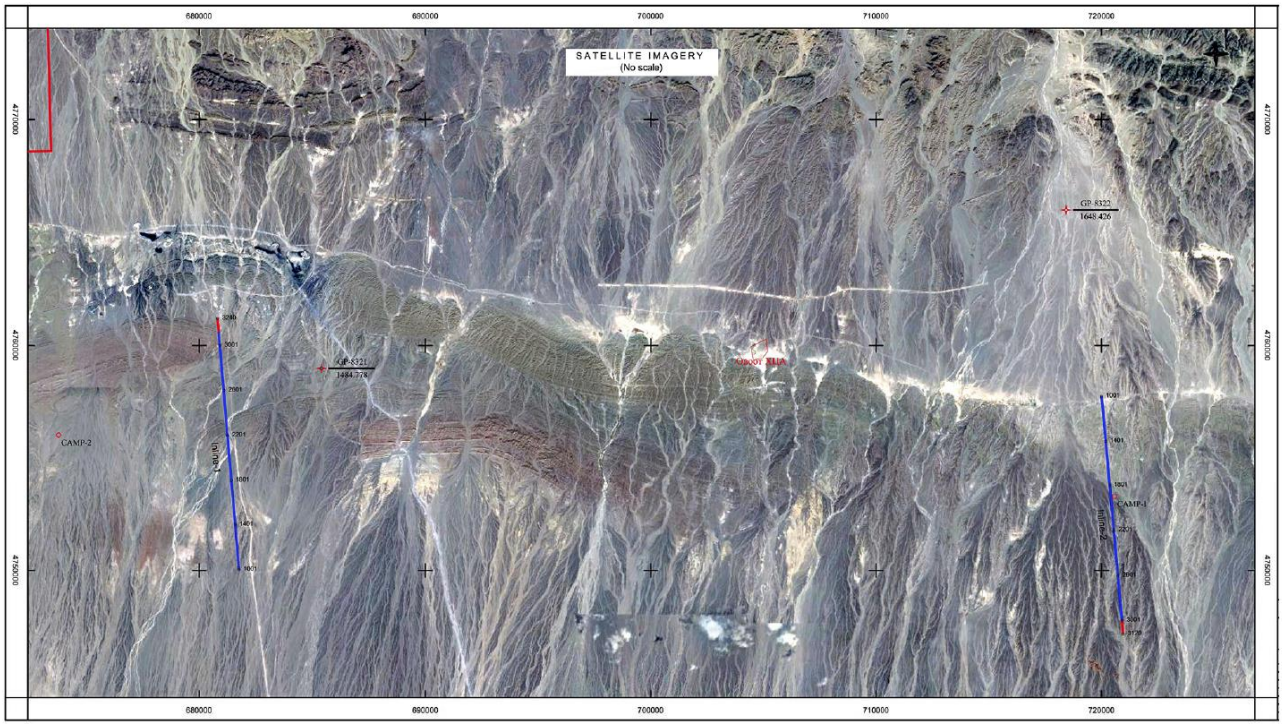

Figure 5-4: Gurvantes XXXV seismic location map

5.5. Resources

A prospective resource assessment for the Gurvantes XXXV PSA was undertaken by Netherland, Sewell and Associates ('NSAI') in August 2021 for Telmen and Talon[18]. RISC has reviewed this assessment and whilst finding that the assessment is generally reasonable, considers that some of the parameters used in the assessment require modification. There is a significant amount of geological uncertainty and the project is in the early stages of evaluation.

RISC has therefore made an independent assessment of the Gurvantes XXXV prospective resources. This is described in the following sections.

No moisture or permeability data were available to RISC to review. Telmen has assumed that the coals are fully saturated which RISC accepts as reasonable (although has no upside, only downside). RISC notes that Elixir have announced that coals in the Nomgom project are fully saturated[19].

The data for the Khukhulzokh area was not made available to RISC. RISC did request that the data be made available but understands that the data remains confidential. RISC has therefore relied upon the assessment and risking as proposed by Telmen. However, based on our review the assessment and consequent valuation in RISC's opinion takes account of the consequent uncertainty in this area.

5.5.1. Coal depth structure

Telmen have used the compiled database to map the depth to the upper coal seam (Figure 5-2) and net coal thickness along strike (Figure 5-5). RISC notes that the depth structure is based primarily on coal drill-holes, mostly of which are shallow. Therefore, there has been some extrapolation of the depth structure in depth and spatially between drill-holes.

RISC also notes that the depth structure in the Khukhulzokh area is based on data that has not been made available to RISC to review. Therefore, the depth structure in this area cannot be verified.

The coal depth structure mapping has been reviewed by RISC and with some reservations we find it acceptable.

5.5.2. Coal seam gas regions

Telmen has defined the coal seam gas field and region subdivision as discussed in Section 5.3. RISC reviewed the field areas and region subdivisions and concluded that they required some revision. The Khukhulzokh Extension and Gurvantes South regions were also redefined.

RISC has independently calculated the areas for use in the resource estimates using several constraints:

- The areas for use in the in-place resource estimate are calculated based on the coal depth structure where data are available and constrained to 200 m to 1,000 m depth, reflecting the expected depth range of permeable gas saturated coals. RISC notes that with acquisition of additional gas content and permeability data this depth range may require revision.
- For the Nariin Sukhait central area, RISC has calculated the effective area with a 200 m exclusion zone around the current open-cut mine workings. Up-to-date satellite imagery was accessed for this purpose. Note that this exclusion area did not include the extensive mine tailings dumps which may provide further restrictions on access in the area.

[18] Talon Energy ASX release dated 18 August 2021.
[19] Elixir Energy ASX releases dated 8 July and 3 December 2020

- For areas with little drill-hole data, the areas have been defined based on the geological map (annotated coal outcrop and geological trends) and surface features visible on satellite imagery.

The areas are shown in Figure 5-2 and included in Table 5-6.

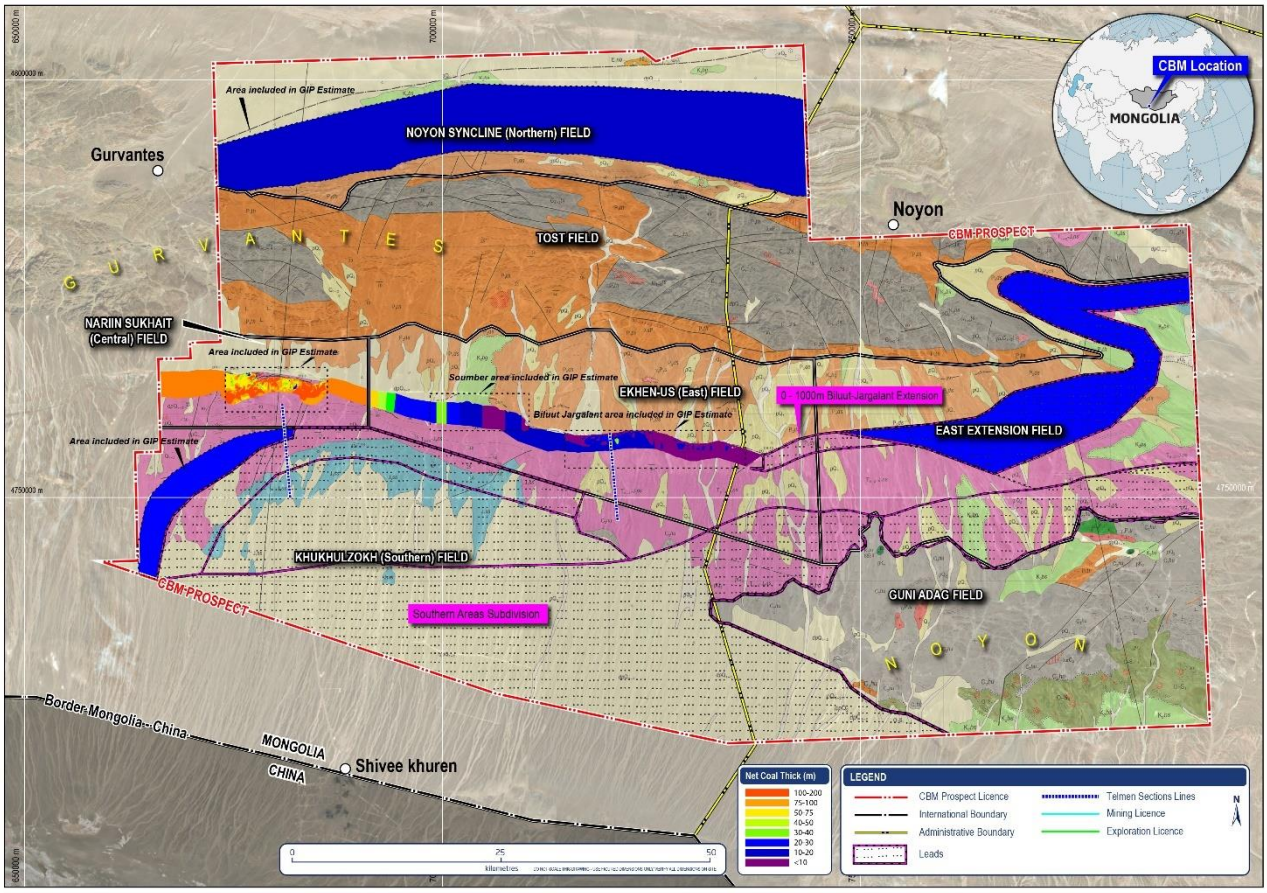

Figure 5-5: Gurvantes XXXV net coal thickness (Telmen)

5.5.3. Net coal thickness

Coal seam nomenclature varies between coal mine and operator in the Gurvantes XXXV PSA area. Telmen has evaluated the dataset and whilst coal seam thicknesses are variable, Telmen has defined an Upper and Lower coal seam for the purposes of coal seam gas exploration and evaluation. The two key seams are typically separated by 100 – 200 m of interburden with minor coal seams.

A generalised stratigraphic section from drill-hole data in the Ovoot Tolgoi deposit within the Nariin Sukhait area is shown in Figure 5-6. Telmen ascribes seam group 5L to the lower seam, and seam groups 7, 6U/L and 5U to the upper seam. It is this assignment that results in the net coal thickness assessment by Telmen. A summary of upper and lower coal seam thickness is shown in Table 5-3.

RISC has independently reviewed the data and finds the evaluation as generally reasonable. RISC has however made some adjustments to the net coal thickness in some areas and these are documented in Section 5.5.8.

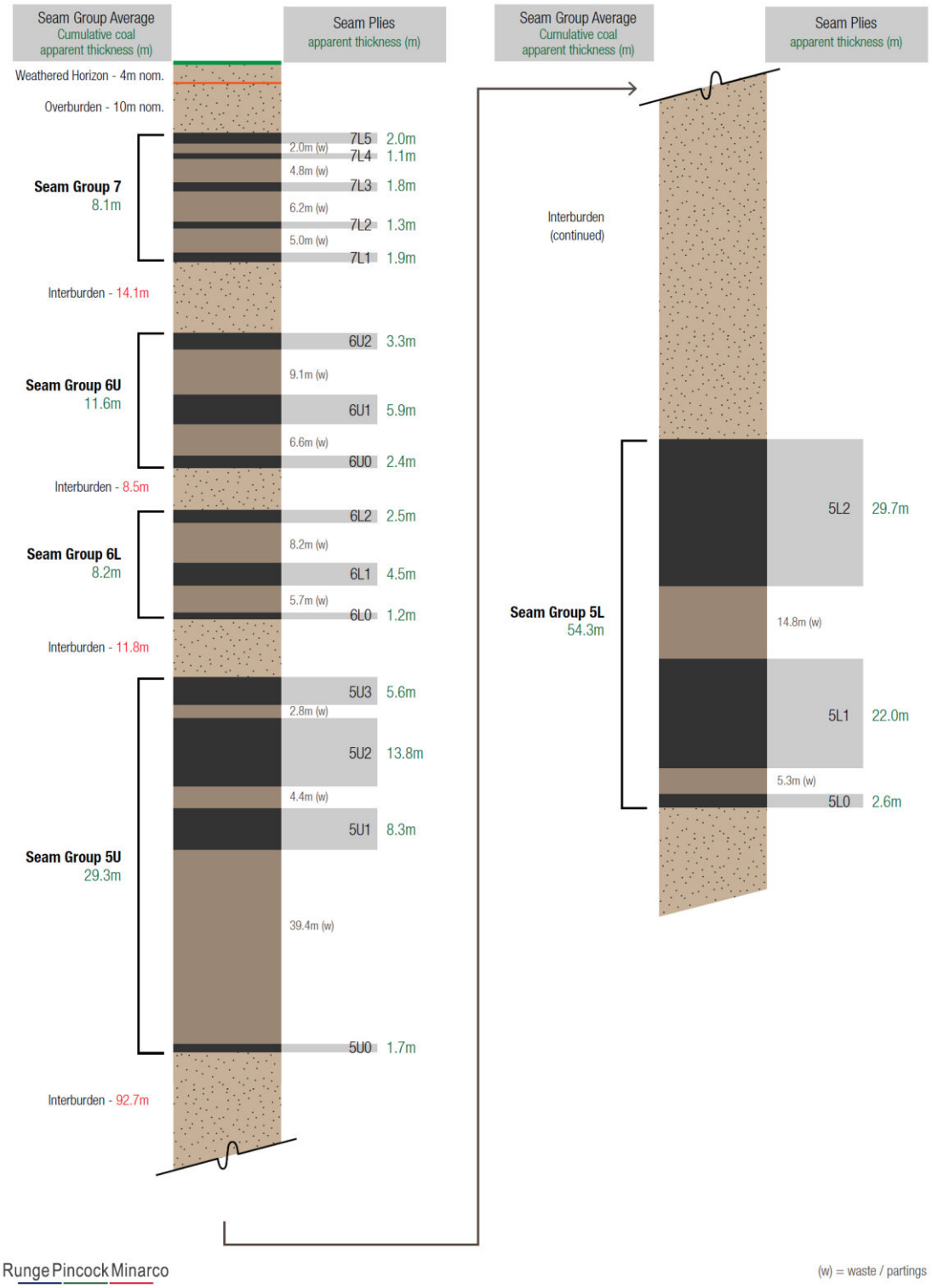

Figure 5-6: Gurvantes XXXV generalised stratigraphy from drill-hole data[20]

[20] South Gobi Resources Ltd, Coal Geology and Resources, Ovoot Tolgoi Deposit, Mongolia. SEDAR NI 43-101 filing, 13 May 2016.

Table 5-3: Gurvantes XXXV coal seam thickness (Telmen)

Source	Area	Upper Seam Group Average Thickness (m)	Lower Seam Group Average Thickness (m)
Stormcat Energy Exploration	Nariin Sukhait	21	N/A
Uzukh Zoos LLC	Khuren Shand Mine	38	26
SouthGobi Sands	Ovoot Tolgoi Sunrise mine	29	53
SouthGobi Sands	Ovoot Tolgoi Sunset mine	34	45
SouthGobi Sands	Billut Jargalant	8	N/A
SouthGobi Sands	Soumber	16	N/A

5.5.4. Coal density

The relationship between ash and density for the coal seams for all available data is shown in Figure 5-7. At a 50% ash cutoff applied the median coal density is approximately 1.85 g/cc.

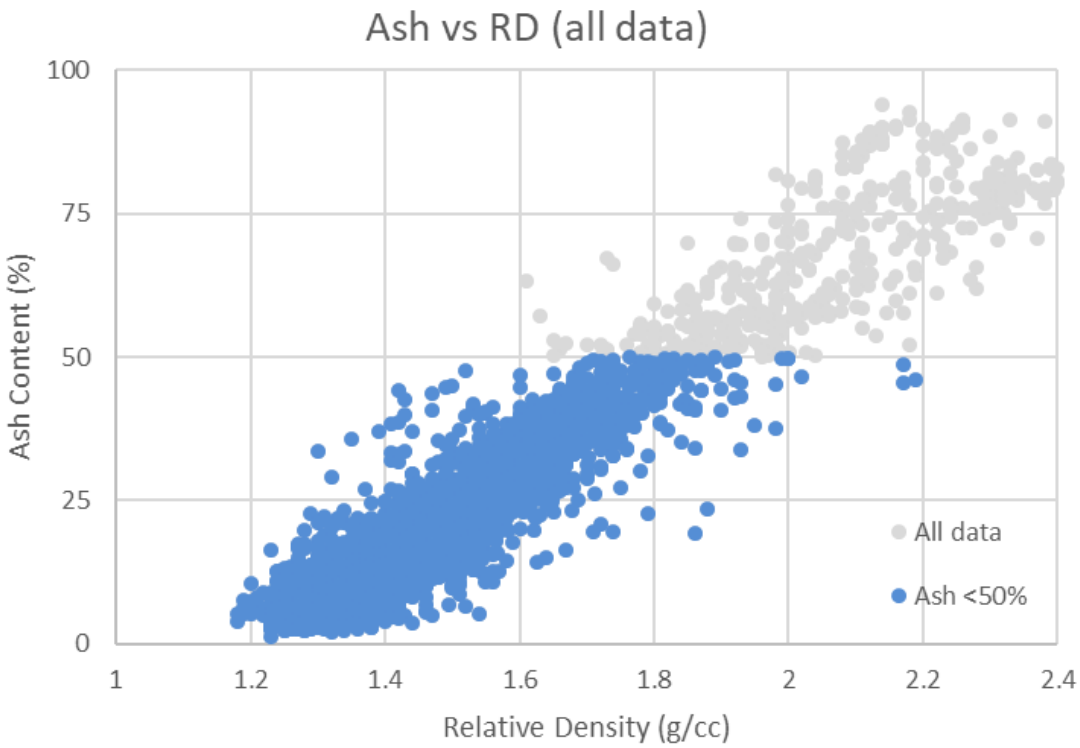

Figure 5-7: Gurvantes coal ash versus density data

RISC has reviewed the data and whilst unable to verify the integrity of the original analysis, the data appears reasonable, whilst there is a significant spread.

RISC has determined that following truncation of the data at 50% ash content the mode coal density of the dataset is 1.32 g/cc which likely indicates a bias toward sampling higher quality coals. RISC has determined by analysis of the data that the average density to be used for the gas in place estimate is 1.52 g/cc. RISC notes that NSAI used a density of 1.6 g/cc in its evaluation.

5.5.5. Gas content

Samples from six drill-holes have been collected for desorption analysis (Table 5-4). The drill-holes drilled by StormCat Energy (Noyon-1 to 4) do not represent the whole upper and lower coal seam group sections and Noyon-2 did not intersect coals.

The most representative data is that acquired by Uzukh Zoos LLC in the Khurend Shand drill-holes KHS-216 and 224. These holes intersected the representative upper and lower seam groups and a significant representative sample set was analysed for coal seam gas.

Table 5-4: Gurvantes XXXV as received desorption data summary (Telmen)

Drill-hole	Area	Seams	Desorption samples	Valid Results	Average Gas Content (m^3/t)
Noyon-1	Nariin Sukhait	Top Upper	8	7	9.3
Noyon-2	Enkhen	Nil	2	0	-
Noyon-3	Enkhen	Minor	5	4	3.1
Noyon-4	Nariin Sukhait	Minor	5	5	8.8
KHS16-216	Nariin Sukhait	Upper and Lower	62	52	10.3
KHS16-224	Nariin Sukhait	Upper and Lower	68	63	11.3

The desorption results, gas content (as received) against depth are shown in Figure 5-8. Surprisingly, no clear depth trend is apparent. As can be seen, the KHS16-216 upper seam gas content ranges from 4.7 to 15.5 m^3/t whilst KHS16-224 drill-hole upper seam gas content ranges from 7.5 to 18.4 m^3/t, and the lower seam ranges from 3.4 to 22.7 m^3/t in KHS16-216 and 2.9 to 11.7 m^3/t in KHS16-224.

Telmen and NSAI have used a gas content range of 8.5 m^3/t (low), 10 m^3/t (best) and 12.5 m^3/t (high) which RISC consider reasonable.

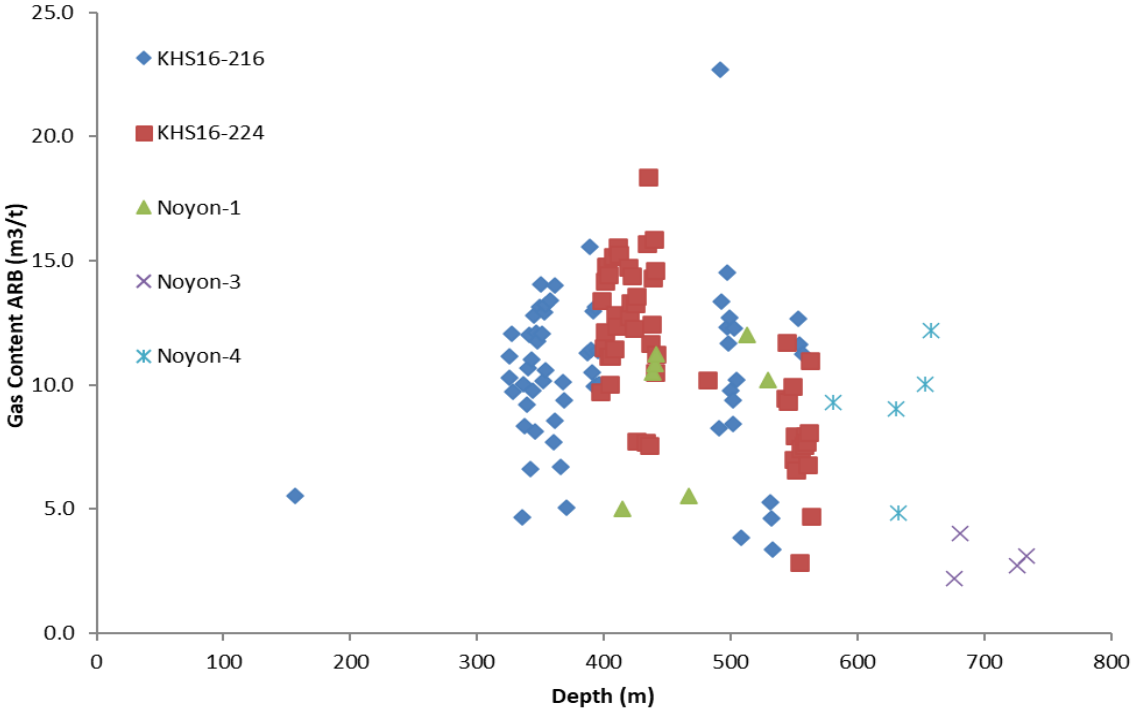

Figure 5-8: Gurvantes XXXV desorption results, as received basis (Q1+Q2+Q3) (Telmen)

Only one adsorption isotherm sample is available to Telmen from the Noyon-1 drill-hole (Figure 5-9), which RISC assumes to be a methane isotherm. This analysis would suggest that the coal is saturated. Telmen has assumed that all coals are fully saturated, which RISC accepts as reasonable based on other South Gobi Basin analyses[19].

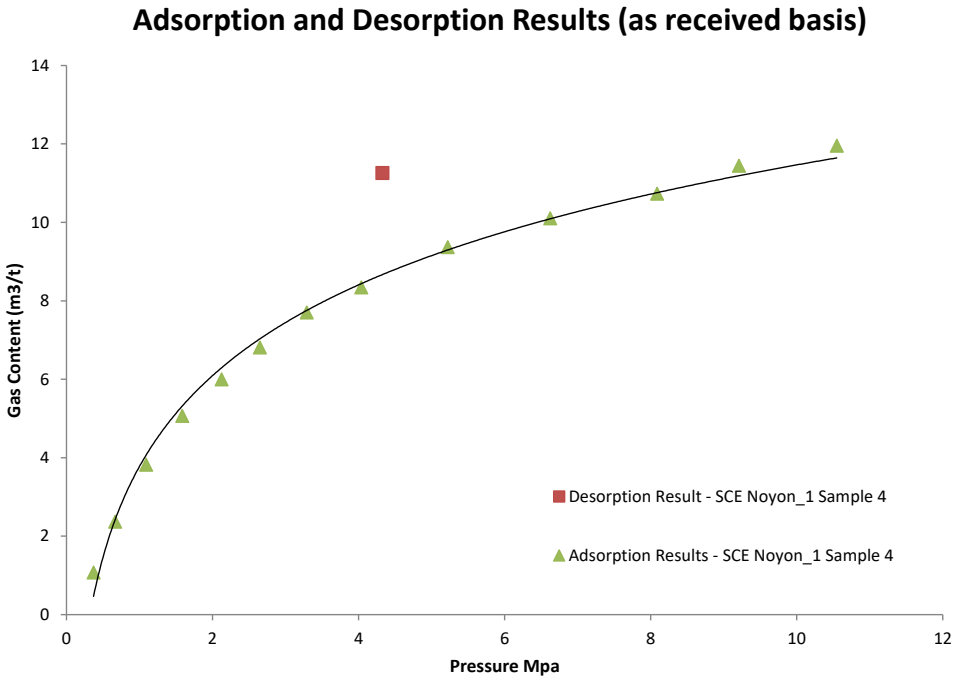

Figure 5-9: Gurvantes XXXV adsorption isotherm results, Noyon-1 drill-hole, 441.2m (Telmen)

5.5.6. Gas composition

Gas composition data are available for the KHS16-216 and 224 drill-holes, acquired by Uzukh Zoos LLC. Telmen has corrected the results as the sample cannisters were not purged for air prior to acquiring the samples (Table 5-5). The gas composition on average is 94.3% methane (CH_4) with low carbon dioxide (CO_2) content.

RISC has been unable to verify the original analyses, nor the corrections undertaken by Telmen, but upon review of the information provided by Telmen consider the original analyses and Telmen's subsequent analysis as reasonable. RISC has no grounds for doubting the results and its analyses.

Table 5-5: Gurvantes XXXV gas composition data summary (Telmen)

	Raw Results (average)				Telmen Corrected (average)			
	N_2 (%)	CO (%)	CO_2 (%)	CH_4 (%)	N_2 (%)	CO (%)	CO_2 (%)	CH_4 (%)
Average	10.47	2.91	1.65	82.81	0	3.34	1.87	94.33
Minimum	0.23	0.02	0.10	37.64	0	0.0	0.10	87.63
Maximum	47.66	8.12	3.63	96.70	0	9.94	6.47	99.61

Notes to the table:

- Average compositions may not sum to 100%, other gases analysed include oxygen and propane.

5.5.7. Geological probability of success

An assessment of the geological probability of success ('gPOS') for each of the Gurvantes XXXV PSA regions was provided by NSAI. RISC has reviewed the risking and accepts them as reasonable, except for the revised areas of Khukhulzokh Extension and Gurvantes South regions (see below). The risking is shown in Table 5-6.

The well-defined coal bearing regions of Nariin Sukhait, Enkhen and Biluut Jargalant are assigned a 90% gPOS which is reflective of the current understanding of the coal seam gas potential of the coals, the paucity of permeability and gas saturation data and the potential for the coals to produce gas on test.

The Biluut Jargalant Extension, Khukhulzokh, Noyon Syncline and East Extension regions with known coal deposits and some drill-hole or outcrop data have been assigned a 50% gPOS reflecting the availability of data and that these areas possess similar geology and coal characteristics as the Nariin Sukhait, Enkhen and Biluut Jargalant areas.

RISC reviewed the risking and finds it to be reasonable, except for the revised areas of Khukhulzokh Extension and Gurvantes South for which RISC recommends a gPOS at 10%. There is a paucity of geological information in these areas and a future work program may delineate and de-risk prospective coal seam gas areas.

5.5.8. In-place resources

The input parameters described in Sections 5.1 to 5.5 and used by RISC for the Gurvantes XXXV prospective resource assessment are shown in Table 5-6 and Table 5-7.

Table 5-6: Gurvantes XXXV area and thickness parameters (RISC)

Field	Region	Area (km^2)			Net Coal Thickness (m)			gPOS (%)
		Low	Best	High	Low	Best	High	
Nariin Sukhait	West	16.6	18.4	20.2	75	85	95	90
	Central	18.6	20.7	22.8				90
	East	7.5	8.3	9.1				90
Enkhen	West	11.3	12.5	13.8	18	20	22	90
	Central	19.5	21.7	23.9				90
	East	9.5	10.6	11.7				90
Biluut Jargalant		33.8	37.5	41.3	10	12	14	90
Biluut Jargalant Extension		20.4	22.7	25.0				50
Khukhulzokh		67.0	74.4	81.8				50
Noyon Syncline		369.0	410.0	451.0				50
East Extension		277.2	308.0	338.8	10	20	50	50
Khukhulzokh Extension		657.9	731.0	804.1				10
Gurvantes South		1,297.8	1,442.0	1,586.2				10

Table 5-7: Gurvantes XXXV density and gas content parameters (RISC)

Parameter	Low	Best	High
Density (g/cc)	1.37	1.52	1.67
In situ Gas Content (m^3/t)	8.5	10.0	12.5

RISC has independently calculated the areas as mapped in combination with the geological map and available satellite imagery and has applied an +/- 10% uncertainty around the best estimate of the area for use in the resource estimation.

Telmen has derived net coal thicknesses for each area based on the available data. RISC notes that the Nariin Sukhait and Enkhen regions, and to a lesser extent the Biluut Jargalant area, thicknesses are based on extensive drill-hole data. For the areas without extensive drill-hole data, Telmen has relied upon geological outcrop to estimate net coal thickness. RISC finds this approach reasonable and has applied a geological probability of success ('gPOS') to reflect this evaluation approach.

RISC has adjusted the net coal thicknesses for the Khukhulzokh area and applied a wide range of net coal thickness for the speculative East Extension, Khukhulzokh Extension and Gurvantes South regions.

RISC has calculated the gas initially in place ('GIIP') utilising a Monte Carlo simulation of the input parameters as previously described and tabled. The resultant GIIP results are shown in Table 5-8. Gas volumes include the expected low level of inerts.

Table 5-8: Gurvantes XXXV GIIP estimates (RISC)

Field	Region	GIIP (Bcf)		
		Low	Best	High
Nariin Sukhait	West	723	959	1,240
	Central	814	1,078	1,394
	East	327	432	553
Enkhen	West	117	153	196
	Central	203	265	341
	East	99	130	166
Biluut Jargalant		200	274	367
Biluut Jargalant Extension		122	166	220
Khukhulzokh		402	544	719
Noyon Syncline		2,200	2,987	3,968
East Extension		1,803	3,787	9,616
Khukhulzokh Extension		4,288	8,981	22,828
Gurvantes South		8,494	17,723	45,329

Notes to the table:

1. The estimated quantities of petroleum that may be present. These estimates have both an associated risk of discovery and a risk of development. Further exploration, appraisal and evaluation is required to determine the existence of a significant quantity of potentially moveable hydrocarbons.
2. Probabilistic methods have been used.
3. No correction for inert content such as N_2 or CO_2 has been applied.

5.5.9. Reservoir development plan

Telmen has prepared a preliminary conceptual reservoir development plan based on the proposed forward work program (refer Section 5.1). The concept focusses on developing the Nariin Sukhait central region due to the well-defined resource from the existing coal dataset, thick well developed coal seams with proven gas content from historical coal seam gas evaluations, a GIIP estimate of >1,000 Bcf and an onsite market with the existing coal mining operations seeking to displace current diesel power generation.

The conceptual development plan is very preliminary and consists of a staged development:

- Stage 2 (2022/23) - Following completion of the Stage 1 exploration program, establishment of a 3 or 5 well pilot well production with produced gas utilised for onsite power generation.
- Stage 3 (2023/25) – Production ramp-up, drilling of 60 – 100 wells over a 3-year period with an approximate well spacing of 250 x 500 m.
- Stage 4 (2026) – Steady state production, 55 TJ/day.

RISC notes that the well spacing may not be accurate as the development plan is conceptual and at a very preliminary stage, and that there is a paucity of gas saturation and permeability data. A well spacing of 250 x

500 m may be appropriate to assume at this early stage. However, RISC notes that a well spacing of 700 x 700 m may be possible which is more typical of Walloon Coal Measures coal seam gas development well spacing in the Surat Basin of south-east Queensland, Australia.

RISC consider this staged conceptual reservoir development plan is reasonable. However, in the absence of a coordination and access agreement with the mining licence holders and coal mining operators, the forward exploration, exploitation plan and its schedule is at risk.

Following the establishment of production from this conceptual staged development it is envisaged that the development will ramp-up following additional exploration and appraisal activities. As offtake increases the domestic gas market will potentially be supplied in addition to local mining operations. Export market to China is also being evaluated.

This conceptual development plan does not develop the full prospective resources described in Section 5.5.10:

- This conceptual development producing 55TJ/day (20 PJ/year) would produce approximately 500 Bcf over a 25-year project life.
- To fully develop the Nariin Sukhait, Enkhen and Biluut Jargalant regions, being the best defined and most prospective regions, would require the drilling of approximately 400 to 1,500 wells developing 3,292 Bcf (best estimate) GIIP.
- To fully explore, appraise and develop the entire Gurvantes XXXV PSA prospective resources would require the drilling of many thousands of wells.

5.5.10. Prospective resources

Telmen have estimated a recovery factor range of 45% (low), 55% (best) and 70% (high). RISC notes that these recovery factors were used by Fluid Energy Consultants and NSAI in their assessments of prospective resources.

In the absence of extensive and detailed information relevant to an assessment of recovery including gas saturation, permeability and any proposed future development well spacing, RISC accepts the recovery factor range as presented by Telmen, although consider them potentially conservative for saturated coal.

RISC has derived prospective resources using a Monte Carlo approach. These estimates are included in Table 5-9 on a gross Gurvantes XXXV PSA un-risked and risked basis. Un-risked and risked prospective resources net to Telmen are included in Table 5-10.

Table 5-9: Gurvantes XXXV prospective resources, un-risked and risked (RISC)

Field	Area	Gross Un-risked Prospective Resources (Bcf)			Gross Risked Prospective Resources (Bcf)		
		1U (Low)	2U (Best)	3U (High)	1U (Low)	2U (Best)	3U (High)
Nariin Sukhait	West	377	543	761	339	489	685
	Central	423	611	851	381	550	766
	East	170	244	342	153	220	308
Enkhen	West	61	88	120	55	79	108
	Central	105	152	209	94	136	188
	East	51	74	103	46	66	92
Biluut Jargalant		106	156	220	95	140	198
Biluut Jargalant Extension		64	95	134	32	47	67
Khukhulzokh		209	309	437	105	154	219
Noyon Syncline		1,155	1,712	2,423	578	856	1,211
East Extension		984	2,146	5,579	492	1,073	2,789
Khukhulzokh Extension		2,322	5,134	13,522	232	513	1,352
Gurvantes South		4,628	10,095	26,051	463	1,010	2,605
Total					**3,065**	**5,334**	**10,591**

Notes to the table:

1. The estimated quantities of petroleum that may be potentially recoverable. These estimates have both an associated risk of discovery and a risk of development. Further exploration, appraisal and evaluation is required to determine the existence of a significant quantity of potentially moveable hydrocarbons.
2. Probabilistic methods have been used.
3. Note the totals are derived by arithmetic aggregation of the resources, as a result RISC cautions that the Low Estimate aggregate quantities may be very conservative estimates and the High Estimate aggregate quantities may be very optimistic due to portfolio effects.
4. No correction for inert content such as N_2 or CO_2 has been applied.
5. Prospective resources for the Nariin Sukhait central region are at risk if a formal access and coordination agreement cannot be formalised with the mine licence owners and operators.
6. The conceptual development plan as presented by Telmen only addresses the Nariin Sukhait central region. To fully explore, appraise and develop the prospective resources will require and extensive exploration and development work program.

Table 5-10: Gurvantes XXXV Telmen net prospective resources, un-risked and risked (RISC)

License	Telmen Net Un-risked Prospective Resources (Bcf)			Telmen Net Risked Prospective Resources (Bcf)		
	1U (Low)	2U (Best)	3U (High)	1U (Low)	2U (Best)	3U (High)
Gurvantes XXXV	7,140	14,309	34,005	2,054	3,574	7,096

Notes to the table:

1. The estimated quantities of petroleum that may be potentially recoverable. These estimates have both an associated risk of discovery and a risk of development. Further exploration, appraisal and evaluation is required to determine the existence of a significant quantity of potentially moveable hydrocarbons.
2. Prospective resources are net Telmen following completion of the Talon Energy farm-in and the transfer of 33% net equity in the Gurvantes XXXV PSA.
3. Probabilistic methods have been used.
4. Note the totals are derived by arithmetic aggregation of the resources, as a result RISC cautions that the Low Estimate aggregate quantities may be very conservative estimates and the High Estimate aggregate quantities may be very optimistic due to portfolio effects.
5. No correction for inert content such as N_2 or CO_2 has been applied.
6. Prospective resources for the Nariin Sukhait central region are at risk if a formal access and coordination agreement cannot be formalised with the mine licence owners and operators.
7. The conceptual development plan as presented by Telmen only addresses the Nariin Sukhait central region. To fully explore, appraise and develop the prospective resources will require and extensive exploration and development work program.

RISC notes that our independent prospective resource assessment is within 11% of the NSAI assessment on a risked 2U level. In the Nariin Sukhait and Enkhen field areas the difference is typically less than 10%.

As discussed in Section 5.2, Telmen has had preliminary and cordial discussions with the owners of the mining licences and operators of the open cut mines regarding access and coordination. However, a formal access and coordination agreement has not yet been executed between the Gurvantes XXXV PSA joint venture and the mining entities.

The conceptual development plan as presented by Telmen does not address the entire prospective resource. However, the conceptual development plan is a realistic plan addressing the resources with greatest certainty and that could be achieved within a reasonable timeframe.

To fully develop the prospective resource would require additional work program over and above that proposed and require the drilling of many thousands of production wells. This would require a step change in the Mongolian CSG development, supported by larger operators.

6. Talisman Deeps

Tamaska has a beneficial interest in the Talisman Deeps petroleum rights of the WA-8-L production license located in the Carnarvon Basin of the Northwest Shelf of Australia. Tamaska acquired a 20% shareholding in Skye Napoleon Pty Ltd ('Skye') which has 100% ownership of the Talisman Deeps project comprising the rights to petroleum below 2,700 m in the WA-8-L license. Tamaska has the right to convert its 20% interest in Skye to a 20% direct interest in the Talisman Deeps rights.

The title to the WA-8-L license is held by a joint venture of Kato NWS Pty Ltd (Operator) and Kato Amulet Pty Ltd[21], a group of companies wholly owned by Skye Energy Ventures. This joint venture acquired the license from the previous titleholders, Santos, Tap Oil and KUFPEC in 2018.

The WA-8-L production license was originally awarded in 1988, as a derivative license from the WA-191-P Exploration Permit, for the development of the Talisman oil field. This field has now been produced and abandoned. The Amulet oil pools were subsequently discovered in 2006 and have not been developed. Tamaska does not have a beneficial interest in, nor rights to, the Amulet oil pools.

The license was last renewed in 2010 for a further 21-years. Although the license is a production license awarded under the Offshore Petroleum and Greenhouse Gas Storage Act ('OPGGSA') the regulatory framework for production licenses to directly revert to an exploration permit after the cessation of exploitation activities does not exist. The license is therefore considered a petroleum exploration license by the titleholders and the National Offshore Petroleum Titles Administrator ('NOPTA').

Key terms of the licenses are shown in Table 6-1.

Table 6-1: WA-8-L license and Talisman Deeps terms

Initial term	21-years, last renewed in 2010
Signature bonus	Nil
Training, Administration & Local Development fees	Nil
Annual Licence Fees	A$40,000 per annum gross
Royalty	2% overriding royalty [22]
Taxes	Australian [23]
Minimum work program commitments	Nil

6.1. Work program and commitments

The WA-8-L license and Talisman Deeps project do not have an associated work program commitment.

[21] Confirmed from the National Offshore Petroleum Titles Administrator ('NOPTA') National Electronic Approvals Tracking System ('NEATS'). Retrieved on 26 November 2021.
[22] Australian Federal offshore projects do not attract a state royalty; however the project has an overriding 2% royalty obligation to a third party.
[23] Revenues from petroleum exploitation activities in Australian Federal offshore waters attract company taxes and the Petroleum Resource Rent Tax ('PRRT') profits based tax.

6.2. Data

Various data sources were available to Tamaska and ERCE in their evaluation of the WA-8-L license and the Napoleon prospect. Seismic and well data in Australia becomes publicly available or openfile. Basic and interpretive datasets have differing timeframes for public release. The main data and information provided to RISC is described in Section 2.2 which was supplanted by public domain data. The main datasets are described below.

RISC has not reviewed the original or reprocessed data such as seismic data or well logs but has independently and critically reviewed the ERCE assessment and the interpretations of Skye and Tamaska in the supplied information and documentation.

6.2.1. Seismic data

The main dataset used by Skye and Tamaska is the Panaeus 3D which was reprocessed in 2020-21 by DUG Technology in 2021 for Skye. The Panaeus 3D was originally acquired as a multi-client seismic product by PGS in 1997 – 1998. The survey was acquired in parts, with differing acquisition vessels and had a variable acquisition geometry (towed streamer configuration). The predominant acquisition geometry however was conventional streamers with a 4,050 m cable length.

The survey has been reprocessed numerous times on a proprietary and multiclient basis. The 2020-21 reprocessing undertaken for Skye was on a proprietary basis. The reprocessing incorporated current processing practices and workflows including broadband processing, full waveform inversion ('FWI') for tomography and optimised velocity model and anisotropic pre-stack depth migration ('PSDM').

6.2.2. Well data

An extensive database of well data is available in the Northern Carnarvon Basin. Skye and Tamaska have used all available relevant offset well data for regional and prospect level evaluations. Skye and Tamaska have undertaken updated petrophysical evaluations in 2021 of the following wells; Achernar-1, Caribou-1, Castor-1, Charm-1, Fullswing-1, Gaea-1, Lynx-1A, Seraph-1/1ST1 and West Dixon-1.

Skye and Tamaska have compiled an extensive database of porosity data regionally for the North Rankin Formation and its lateral equivalents. This has been used for the reservoir parameterisation in the prospective resource estimates.

6.3. Napoleon Prospect

The Napoleon Prospect is a mid-Jurassic aged, tilted fault block on the eastern flank of the Dampier Sub-basin with predominantly three-way dip closure mapped at the Lower Jurassic levels against a down-to-the-basin fault. Reservoir targets include the primary target of the Upper Triassic to Lower Jurassic aged North Rankin Formation, and secondary targets consisting of sandstones in the overlying Athol Formation (Figure 6-1).

ERCE has undertaken an independent prospective resource assessment of the Napoleon prospect and compiled a comprehensive report detailing its evaluation. RISC has reviewed the evaluation and report and finds the assessment predominantly reasonable.

RISC independently reviewed the prospective resource input parameters used by Tamaska and ERCE and accepts the parameter values and their associated ranges except where described in Section 6.3.2.

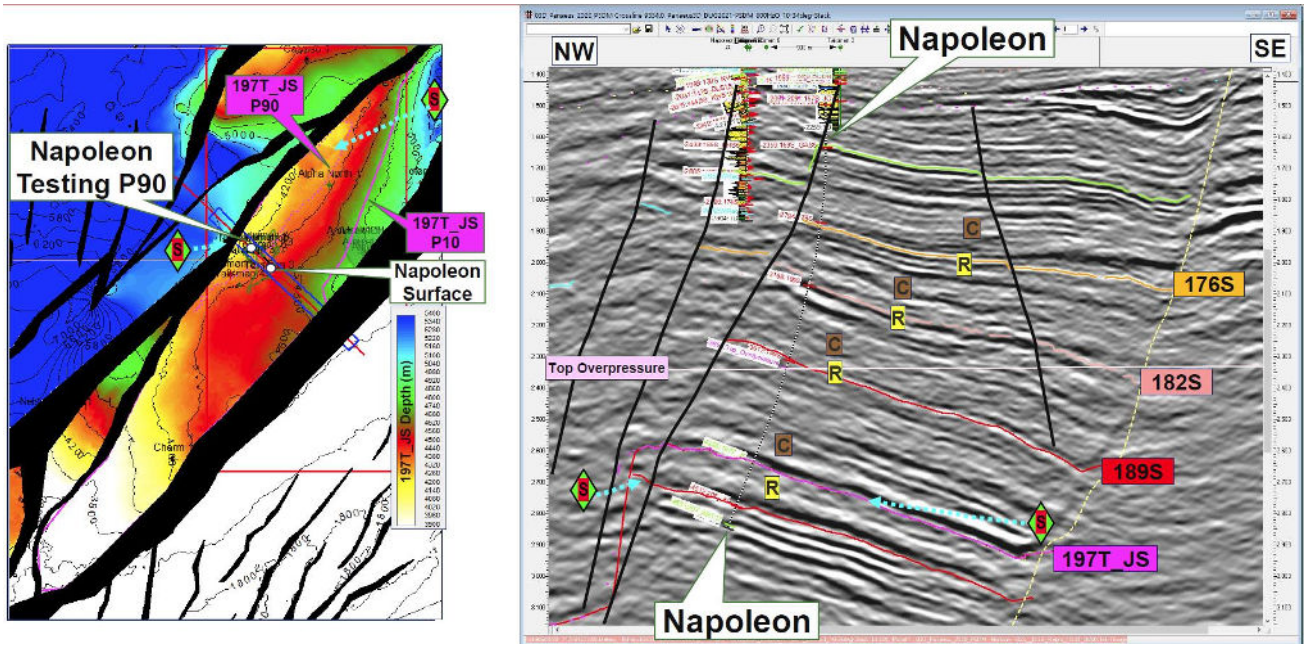

Figure 6-1: Napoleon prospect depth map and TWT section (Tamaska)

6.3.1. Geological probability of success

The ERCE geological risk assessment is shown in Table 6-2. It has been assessed that the largest risk element for the Napoleon Prospect is the presence of effective reservoir. Whilst RISC agrees that this is a significant risk for the prospect given the mapped depth to the objective, RISC views trap and seal being the most significant risk. The prospect as mapped relies upon cross-fault seal on the main bounding fault and down-thrown buttress closure and fault-seal across three bounding faults in the upside case (described further in Section 6.3.2).

Table 6-2: Napoleon Prospect geological risk assessment (ERCE)

Reservoir	Risk Element (%)						gPOS (%)
	Play Chance			Prospect Chance			
	Reservoir Presence	Seal	Source	Migration	Reservoir Eff.	Trap	
176S (Athol Fm.)	90	100	100	60	70	50	19
182S (Athol Fm.)	80	100	100	60	70	60	20
189S (Athol Fm.)	90	100	100	60	70	70	26
197T (North Rankin Fm.)	80	100	100	60	70	70	24

The Napoleon Prospect is assessed as being 19 to 26% gPOS for the Athol Formation levels and 24% gPOS for the 197T North Rankin Formation level. Given that in the high-side case the prospect relies upon cross-fault seal across several bounding faults in both upthrown and downthrown sense, the risk assessment for trap and overall geological chance of success in RISC's opinion may be optimistic.

Notwithstanding the above, RISC considers the overall assessment of geological risk to be reasonable.

6.3.2. In-place resources

ERCE reviewed and modified the two-way-time ('TWT') seismic interpretations of the Napoleon Prospect undertaken by Skye and Tamaska. An independent depth conversion was undertaken utilising a two-layer well based velocity function. Resultant TWT and depth structure maps are shown in Figure 6-2.

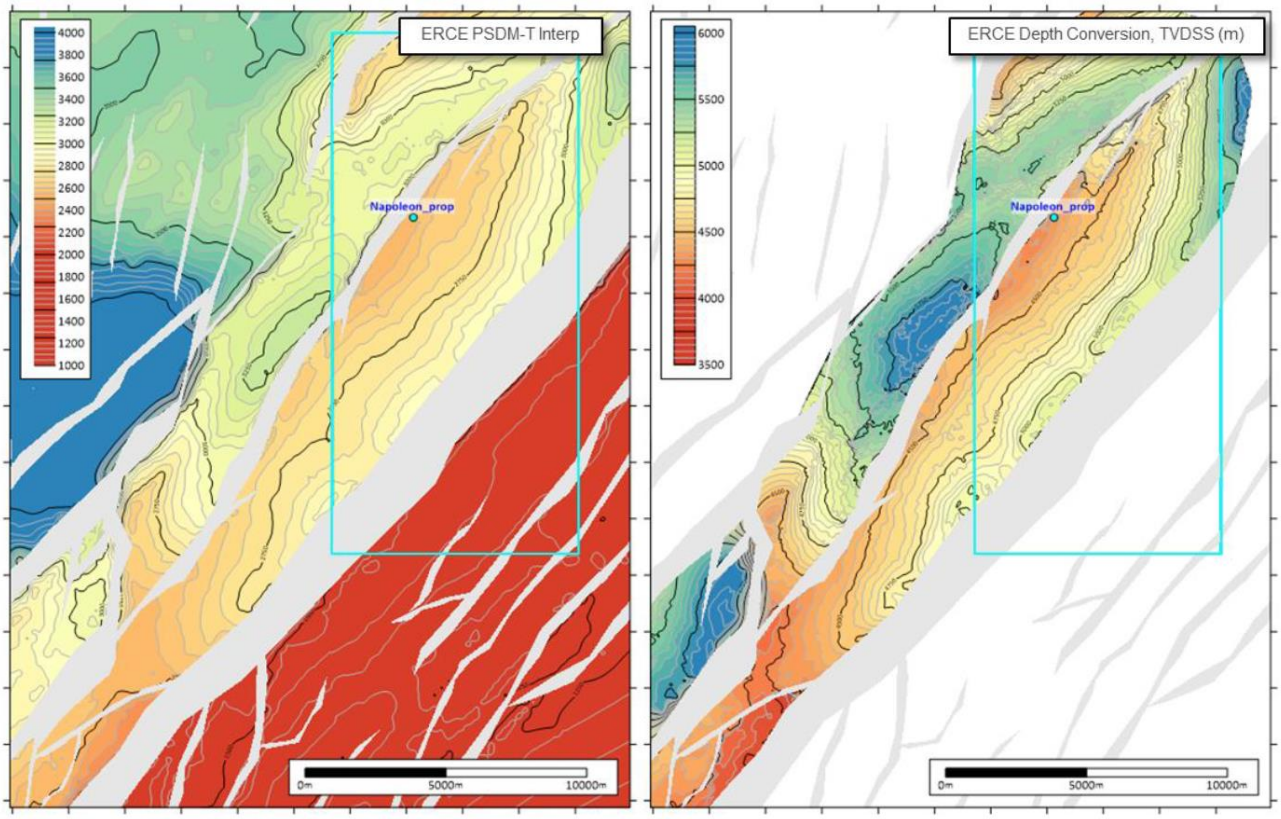

Figure 6-2: Napoleon prospect 197T (North Rankin Fm.) TWT and depth structure map (ERCE)

Skye and Tamaska depth mapping is based primarily on the interpretation of the reprocessed Panaeus 3D seismic PSDM depth volume. In RISC's opinion, depth mapping derived from PSDM data in depth domain are not representative of subsurface depth and still require calibration and correction to well control. Velocities used in the depth migration are still imaging velocities and not true-earth velocities. It is best practise to undertake subsurface interpretations in TWT (scaled back to time for PSDM data) and undertake depth conversion utilising well based velocity functions or a geostatistically calibrated (to wells) seismic velocity model.

RISC considers the depth conversion undertaken by ERCE as reasonable.

ERCE calculated gross rock volume ('GRV') for the Napoleon Prospect at the prospective target levels following depth conversion. The GRV distributions used for the prospective resource assessment are shown in Table 6-3.

Table 6-3: Napoleon Prospect gross rock volume parameters (ERCE)

Reservoir	Unit	Shape	P90	P50	P10	Mean
176S (Athol Fm.)	$Km^2.m$ (MMm^3)	Lognormal	137	517	1,946	884
182S (Athol Fm.)						
189S (Athol Fm.)						
197T (North Rankin Fm.)		Lognormal	855	3,431	13,775	6,176

Notes to the table:

1. Probabilistic methods have been used.

For the shallower 176S, 182S and 189S levels of the Athol Formation a 40 m reservoir thickness was assumed. RISC has not independently verified the GRV estimates for these Athol Formation secondary target levels. We accept them as reasonable based on the area of mapped closure assuming that the mapping approach undertaken by ERCE was similar for all levels, and our independent review of the 197T target assessment.

For the deeper 197T level of the North Rankin Formation the GRV was calculated between the mapped top reservoir depth structure (197T) and base reservoir depth structure (205S level). ERCE used a spill-point of 4,480 mSS defining a three-way dip closure within the WA-8-L license for a low-case GRV estimate, and a spill-point of 4,800 mSS defining a larger on and off-block down-thrown buttress closure inclusive of the low-case closure (Figure 6-3). RISC has independently verified the GRV for this structural level.

From the mapped crest of the independent three-way closure at the 197T North Rankin Formation level (4,250 mS) to the mid-case spill-point of 4,480 mSS would result in a hydrocarbon column height of 230 m, with the high-case map resulting in a column height of 650 m.

The volumetric input parameters used by ERCE for the 176S, 182S and 189S (Athol Fm) levels are shown in Table 6-4. RISC has reviewed the parameters and accepts them as reasonable.

The volumetric input parameters used by ERCE for the 197T North Rankin Formation are shown in Table 6-5.

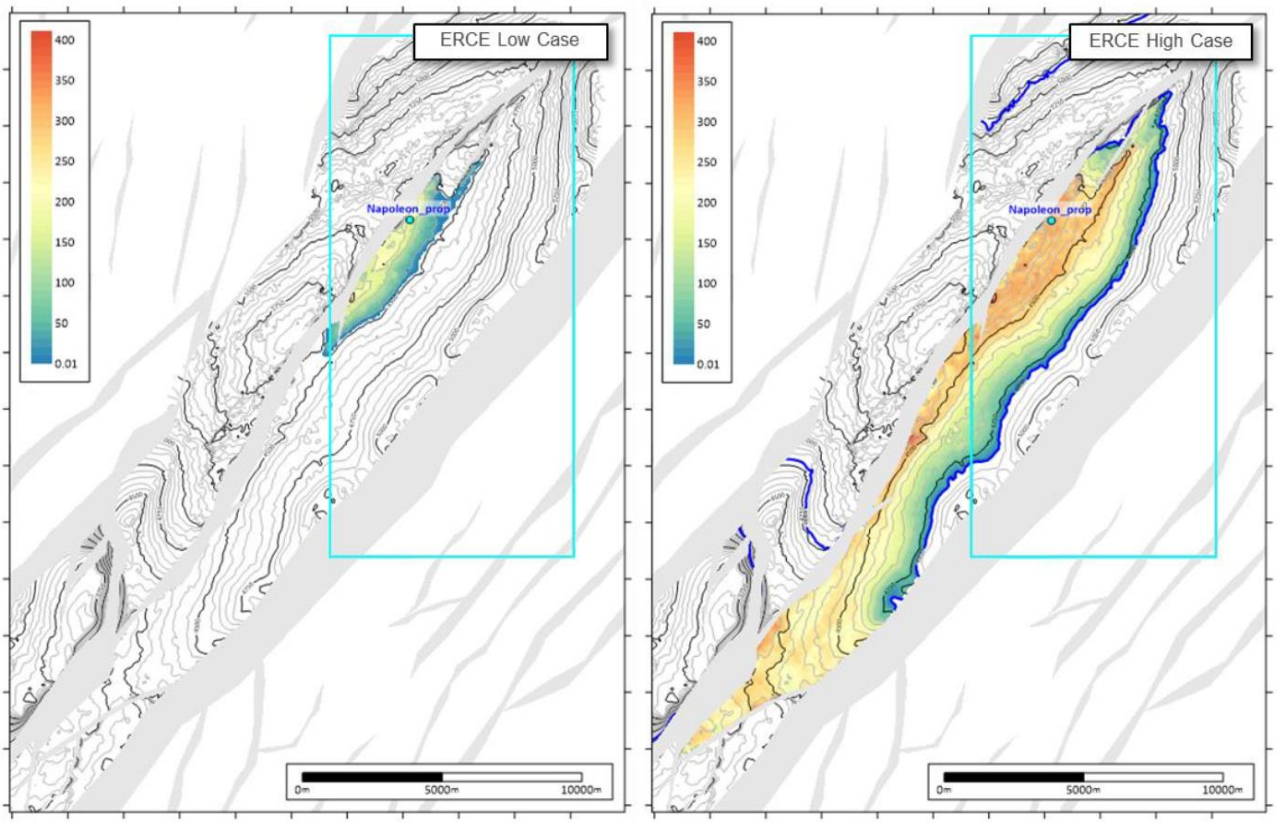

Figure 6-3: Napoleon prospect 197T (North Rankin Fm.) low-case and high-case GRV maps (ERCE).

Table 6-4: Napoleon Prospect 176S, 182S, 189S levels (Athol Fm.) volumetric input parameters (ERCE)

Name	Unit	Shape	P90	P50	P10	Mean
Porosity	%	Beta	7	11	16	11
Net to Gross	%	Normal	30	50	70	50
Sw gas case	%	Beta	30	40	50	40
GEF (1/Bg)	Scf/cf	Normal	256	282	308	282
CGR	Bbl/MMscf	Beta	35	59	100	64
Gas rec. factor	%	Beta	50	69	85	68
Condensate rec. factor	%	Normal	25	45	65	45

Notes to the table:

2. Probabilistic methods have been used.

Table 6-5: Napoleon Prospect 197T level (North Rankin Fm.) volumetric input parameters (ERCE)

Name	Unit	Shape	P90	P50	P10	Mean
Porosity	%	Beta	6	10	16	11
Net to Gross	%	Normal	30	50	70	50
Sw gas case	%	Beta	30	40	50	40
GEF (1/Bg)	Scf/cf	Normal	280	315	350	315
CGR	Bbl/MMscf	Beta	35	59	100	64
Gas rec. factor	%	Beta	55	72	85	71
Condensate rec. factor	%	Normal	30	48	65	48

Notes to the table:

1. Probabilistic methods have been used.
2. RISC estimate the GEF to be 275 to 288 scf/cf

RISC independently reviewed the input parameters and finds them reasonable other than the gas expansion factor ('GEF'). Assuming a geothermal gradient of 3 degC/100 m the estimated temperature at the North Rankin Formation is 160 degC, where ERCE have used a lower geothermal gradient and consequently lower temperatures at the prospective levels and for estimation of GEF.

It is anticipated that the Napoleon Prospect will be overpressured at the primary objective North Rankin Formation level and RISC supports this. Wells drilled into the deeper stratigraphy of the Northern Carnarvon Basin generally exhibit overpressure and this is observed in the offset wells, most notably at Seraph-1/1ST1. An overpressure of up to 2,000 psia is assumed for the Napoleon Prospect which RISC accepts as reasonable.

RISC estimate the GEF to be in the range of 275 to 288 scf/cf assuming 2,000 psia over-pressure and a reservoir temperature of 160 to 180 degC. Application of this change in GEF results in prospective resource estimates within 10% therefore RISC accepts the ERCE estimates as reasonable.

The ERCE gas initially in-place ('GIIP') for the Napoleon Prospect is shown in Table 6-6.

The Napoleon Prospect can be mapped outside of the WA-8-L license into adjacent areas, Figure 6-3. ERCE have evaluated that 100% of the low-case GRV is on-block, whilst 47% of the high-case GRV is mapped on-block. RISC has independently verified this split of the mapped GRV.

However, ERCE assigned 73% of the mid-case GRV as being on-block which is the arithmetic mid-point between the low and high-case on-block splits. RISC has independently determined that approximately 40% of the mid-case GRV is on-block. This on-block estimate would reduce 2U on-block resources by 18%. In addition, ERCE applied the on-block GRV split percentage to the gross prospective resources deterministically, rather than calculating the net resources probabilistically.

Table 6-6: Napoleon Prospect GIIP estimates (ERCE)

Reservoir	GIIP (Bcf)		
	Low	Best	High
176S (Athol Fm.)	35	155	666
182S (Athol Fm.)	33	149	648
189S (Athol Fm.)	31	143	633
197T (North Rankin Fm.)	218	1,047	4,928

Notes to the table:

1. Probabilistic methods have been used.

6.3.3. Prospective resources

ERCE has provided Tamaska with a prospective resource assessment for the Napoleon Prospect. Unrisked and risked gross prospective resources are shown in Table 6-7 and Table 6-8.

Unrisked and risked prospective resources net to Tamaska as determined by ERCE are shown in Table 6-9 and Table 6-10. The net Tamaska prospective resources apply to that proportion of the Napoleon Prospect that is within the WA-8-L license and the Talisman Deep petroleum rights and its 20% shareholding in Skye and the Talisman Deeps petroleum rights.

In RISC's opinion due to the method applied by ERCE to apportion the on-block estimates, the 2U prospective resources net to Tamaska are overestimated by approximately 20%.

Table 6-7: Napoleon Prospect gross prospective resources (Bcf), un-risked and risked (ERCE)

Reservoir	Gross Un-risked Prospective Resources (Bcf)			Gross Risked Prospective Resources (Bcf)		
	1U (Low)	2U (Best)	3U (High)	1U (Low)	2U (Best)	3U (High)
176S (Athol Fm.)	23	103	456	4.4	19.6	86.6
182S (Athol Fm.)	22	100	443	4.4	20.0	88.6
189S (Athol Fm.)	20	96	435	5.2	25.0	113.1
197T (North Rankin Fm.)	149	730	3,484	35.8	175.2	836.2
Total				**49.8**	**239.8**	**1,124.5**

Notes to the table:

1. The estimated quantities of petroleum that may be potentially recoverable. These estimates have both an associated risk of discovery and a risk of development. Further exploration, appraisal and evaluation is required to determine the existence of a significant quantity of potentially moveable hydrocarbons.
2. Probabilistic methods have been used.
3. Note the totals are derived by arithmetic aggregation of the resources, as a result RISC cautions that the Low Estimate aggregate quantities may be very conservative estimates and the High Estimate aggregate quantities may be very optimistic due to portfolio effects.
4. Note totals may differ due to rounding.
5. No correction for inert content such as N2 or CO2 has been applied.

Table 6-8: Napoleon Prospect gross prospective resources (MMboe), un-risked and risked (ERCE)

Reservoir	Gross Un-risked Prospective Resources (MMboe)			Gross Risked Prospective Resources (MMboe)		
	1U (Low)	2U (Best)	3U (High)	1U (Low)	2U (Best)	3U (High)
176S (Athol Fm.)	4.5	21.1	95.6	0.9	4.0	18.2
182S (Athol Fm.)	4.4	20.4	93.0	0.9	4.1	18.6
189S (Athol Fm.)	3.9	19.6	91.1	1.0	5.1	23.7
197T (North Rankin Fm.)	29.9	149.9	732.1	7.2	36.0	175.7
Total				**9.9**	**49.1**	**236.2**

Notes to the table:

1. The estimated quantities of petroleum that may be potentially recoverable. These estimates have both an associated risk of discovery and a risk of development. Further exploration, appraisal and evaluation is required to determine the existence of a significant quantity of potentially moveable hydrocarbons.
2. Probabilistic methods have been used.
3. Bcf to MMboe conversion = 6 Bcf to 1 MMboe
4. Note the totals are derived by arithmetic aggregation of the resources, as a result RISC cautions that the Low Estimate aggregate quantities may be very conservative estimates and the High Estimate aggregate quantities may be very optimistic due to portfolio effects.
5. Note totals may differ due to rounding.
6. No correction for inert content such as N2 or CO2 has been applied.

Table 6-9: Napoleon Prospect net Tamaska prospective resources (Bcf), un-risked and risked (ERCE)

Reservoir	Net Un-risked Prospective Resources (Bcf)			Net Risked Prospective Resources (Bcf)		
	1U (Low)	2U (Best)	3U (High)	1U (Low)	2U (Best)	3U (High)
176S (Athol Fm.)	5.0	15.0	44.0	1.0	2.9	8.4
182S (Athol Fm.)	4.0	15.0	43.0	0.8	3.0	8.6
189S (Athol Fm.)	4.0	14.0	42.0	1.0	3.6	10.9
197T (North Rankin Fm.)	30.0	107.0	324.0	7.2	25.7	77.8
Total				**10.0**	**35.2**	**105.6**

Notes to the table:

1. The estimated quantities of petroleum that may be potentially recoverable. These estimates have both an associated risk of discovery and a risk of development. Further exploration, appraisal and evaluation is required to determine the existence of a significant quantity of potentially moveable hydrocarbons.
2. Probabilistic methods have been used.
3. Note the totals are derived by arithmetic aggregation of the resources, as a result RISC cautions that the Low Estimate aggregate quantities may be very conservative estimates and the High Estimate aggregate quantities may be very optimistic due to portfolio effects.
4. Note totals may differ due to rounding.
5. No correction for inert content such as N2 or CO2 has been applied.

Table 6-10: Napoleon Prospect net Tamaska prospective resources (MMboe), un-risked and risked (ERCE)

Reservoir	Net Un-risked Prospective Resources (MMboe)			Net Risked Prospective Resources (MMboe)		
	1U (Low)	2U (Best)	3U (High)	1U (Low)	2U (Best)	3U (High)
176S (Athol Fm.)	0.9	3.1	9.2	0.2	0.6	1.8
182S (Athol Fm.)	0.8	3.1	9.1	0.2	0.6	1.8
189S (Athol Fm.)	0.8	2.8	8.8	0.2	0.7	2.3
197T (North Rankin Fm.)	9.1	21.9	68.1	2.2	5.3	16.3
Total				**2.7**	**7.2**	**22.2**

Notes to the table:

1. The estimated quantities of petroleum that may be potentially recoverable. These estimates have both an associated risk of discovery and a risk of development. Further exploration, appraisal and evaluation is required to determine the existence of a significant quantity of potentially moveable hydrocarbons.
2. Probabilistic methods have been used.
3. Bcf to MMboe conversion = 6 Bcf to 1 MMboe
4. Note the totals are derived by arithmetic aggregation of the resources, as a result RISC cautions that the Low Estimate aggregate quantities may be very conservative estimates and the High Estimate aggregate quantities may be very optimistic due to portfolio effects.
5. Note totals may differ due to rounding.
6. No correction for inert content such as N2 or CO2 has been applied.

7. Valuation

RISC has considered oil and gas industry accepted practices to determine Value, including comparable transactions, farm-in promotion factors, sunk costs / work program and EMV.

RISC has adopted the sunk costs and farm-in promotion factor methods for determining the fair market value of both the Gurvantes XXXV PSA and the Talisman Deeps Napoleon Prospect.

For the Gurvantes XXXV asset the Talon farm-in provides a direct method of valuation. For the Talisman Deeps Napoleon Prospect asset, it is assumed that the partners will seek to farm-out the drilling of a Napoleon exploration well.

Alternative valuation approaches have been investigated to support the valuation and these are presented and discussed herein.

7.1. Gurvantes XXXV PSA

RISC has assessed a fair market value of Telmen's net interest in the Gurvantes XXXV PSA to be between AU$3.8 million and AU$16.2 million with a best estimate of AU$10.3 million (Table 7-1).

Table 7-1: Gurvantes XXXV PSA valuation

	Valuation (AU$ million)		
	Low	**Best**	**High**
Gurvantes XXXV PSA 100% Project	3.8	15.3	36.1
Net Telmen	3.8	10.3	16.2
Valuation rationale	Discounted sunk costs & committed costs (Talon farm-in Stage 1)	Farm-in promote factor (Talon farm-in Stage 1 & 2) plus sunk costs	Farm-in promote factor plus sunk costs

Notes to the table:

1. Low estimate assumes Talon do not exercise the right to 33% equity following Stage 1 of farm-in.
2. Best estimate calculated following election of Talon to continue to Stage 2 and the transfer of 33% net equity in the Gurvantes XXXV PSA.
3. High estimate assumes a further farm-out on similar terms following de-risking of the asset through Stages 1 and 2 of the Talon farm-in and Telmen retain 45%.
4. Conversion rate of AU$1.4 to US$1 used.

RISC has used in its estimation of Value the sunk costs to date incurred by Telmen, the staged Talon farm-in transaction and the costs associated with the forward work program as specified in the PSA.

Specifically:

- Telmen has advised that sunk costs to date in the Gurvantes XXXV PSA are approximately US$1.5 million.
- The Talon farm-in specifies a staged work program [24]:
  - Talon are to fund 100% of Stage 1 to be conducted over the period December 2021 – April 2022 (the drilling of 4 drill-holes with comprehensive analysis) to a value of US$1.5 million plus a cash consideration of US$0.35 million towards past costs.
  - Following Stage 1 and election to continue, Talon will fund 100% of Stage 2 to be conducted over the period August – November 2022 (nominally consisting of a pilot well program) to a value of US$3.15 million.
- RISC assume that the Talon farm-in will satisfy the Years 1 – 4 work program of the Gurvantes XXXV PSA (refer Table 5-2).
- The forward work program costs for Years 5 -10 are assumed to be those as specified in the Gurvantes XXXV PSA (refer Table 5-2).

7.1.1. Valuation assumptions and summary

The valuation method and analysis are detailed in Table 7-2. The sunk costs and the Talon farm-in transaction provide a direct method for determining Value. RISC has used the sunk costs and Talon farm-in for determining the low and best estimates of Value. For the high estimate of Value, it is assumed that a further farm-out transaction is pursued on similar terms on a more extensive work program, as described below.

The low estimate of Value was determined based on sunk costs to date as provided by Telmen plus the costs of Stage 1 of the Talon farm-in, noting that this is a committed work program. Recognising that Talon has the option at the end of Stage 1 not to proceed to Stage 2, RISC have assumed for the low case Value that Talon do not elect to proceed into Stage 2 of the farm-in following the completion of Stage 1. The sunk and committed Stage 1 costs in total would therefore indicate a gross project valuation of US$3.0 million. As these costs are future committed or have been recently accrued no discount or uplift has been applied.

However, should Talon elect not to continue into Stage 2 implies that Stage 1 did not meet technical and/or commercial thresholds. It is therefore appropriate to apply a discount to the valuation to reflect this risked outcome. RISC have applied a 10% discount factor to the sunk and committed Stage 1 costs to determine a low case Value. This discount factor is commensurate with the assessed geological risk (gPOS 90%) for the areas in which the Stage 1 work program will be executed (refer Table 5-6).

The best estimate of Value is based on the Talon farm-in transaction (Stage 1 and 2). The Talon farm-in has an implied farm-in promote factor of 3:1. That is, Talon is carrying Telmen through US$4.65 million of work program to earn 33% equity interest in the PSA. The farm-in or buyer premium borne by Talon in excess of the equity share of these costs (US$1.5 million) amounts to US$3.1 million, implying a gross project premium value of US$9.4 million. RISC has used this gross premium value plus undiscounted sunk costs to determine the best estimate of Value (US$10.9 million gross, US$7.3 million net Telmen).

In the determination of a high case Value, RISC has assumed that a further farm-out is pursued. It is assumed that the Telmen and Talon joint venture jointly pursue a further farm-out seeking a carry on the forward work program. Similar terms to the Talon farm-in transaction have been assumed (*i.e.* 33% equity and farm-in promote of 3:1) which represents a conservative approach. More advantageous terms may be possible particularly if the Talon funded work program has been successful and pilot production has been established.

[24] Talon Energy Ltd ASX release 3 February 2021

Table 7-2: Gurvantes XXXV PSA valuation analysis

Valuation Method & Analysis	Factor or Cost	
	US$	**AU$**
Low Estimate – Discounted Sunk Costs		
Sunk costs (undiscounted)	US$1.5 million	AU$2.1 million
Talon farm-in – Stage 1 costs (committed), Talon to carry Telmen 100 %	US$1.5 million	AU$2.1 million
Project sunk costs (sunk costs plus Stage 1)	US$3.0 million	AU$4.2 million
Discount applied to project sunk costs (sunk costs plus Stage 1)	10 %	
Valuation net Telmen (100 %)	**US$2.7 million**	**AU$3.8 million**
Best Estimate – Talon Farm-in Stage 1 & 2		
Transaction costs (Talon Stage 1 & 2)	US$4.6 million	AU$6.5 million
Equity share of Stage 1 & 2 work program (33 % equity)	US$1.5 million	AU$2.1 million
Farm-in promote factor	3 : 1	
Farm-in premium (net Talon)	US$3.1 million	AU$4.3 million
Implied project premium value (gross)	US$9.4 million	AU$13.2 million
Project value – gross premium value plus sunk costs	US$10.9 million	AU$15.3 million
Valuation net Telmen (67 %)	**US$7.3 million**	**AU$10.3 million**
High Estimate – Further farm-out of future work program		
Year 5 – 10 work program costs (PSA commitments)	US$7.3 million	AU$10.3 million
Talon Stage 1 & 2 costs reimbursement (100%)	US$4.6 million	AU$6.4 million
Transaction costs	US$11.9 million	AU$16.7 million
Assumed farm-out equity	33 %	
Equity share of Year 5 – 10 work program and reimbursement (assumed 33% equity)	US$3.9 million	AU$5.5 million
Farm-in promote factor	3 : 1	
Farm-in premium (net farminee)	US$8.0 million	AU$11.2 million
Implied project premium value (gross)	US$24.3 million	AU$34.0 million
Project value – gross premium value plus sunk costs	US$25.8 million	AU$36.1 million
Valuation net Telmen (45 % assumed)	**US$11.6 million**	**AU$16.2 million**

Notes to the table:

1. Costs are in US$. Conversion rate of AU$1.4 to US$1 used.
2. High estimate assumes Telmen and Talon jointly farm-out equity on a proportional basis (Telmen 67% to 45% and Talon 33% to 22%) and receive a carry on the future work program.

In the high case valuation RISC have assumed that an incoming farminee will carry the joint venture through the Years 5 – 10 work program amounting to US$7.3 million (refer Table 5-2). It is also assumed that the incoming party will reimburse the joint venture 100% of the work program costs funded by Talon (US$4.65 million), on the assumption that the work program funded by Talon has de-risked the asset creating intrinsic value. The resultant farm-in or buyer premium borne by the incoming party in excess of the equity share of these costs (US$3.9 million) amounts to US$8 million implying a gross project premium value of US$24.3 million. RISC has used this premium value plus undiscounted sunk costs to determine the high estimate of Value (US$25.8 million, US$11.6 million net Telmen).

In determining Value, RISC has taken into consideration factors that may affect the valuation. Specifically:

- RISC has taken into consideration the contingent payments (deferred consideration) due as part of the Talon transaction in respect to future contingent resource certification. In RISC opinion, such contingent payments will only be realised when significant exploration and appraisal activity has occurred, and hence is included in the high case estimate of Value.
- The range in the valuation is reflective of the availability of data, that technical evaluation is in the early stages of exploration, gas content and deliverability of the coals is largely unconstrained, and that coal seam gas production has not yet been established in the South Gobi Basin.
- RISC has not been provided the data for the Khukhulzokh coal field area. However, RISC opinion is that this is accounted for in the valuation due to its relative proportion of the total risked resource assessment in addition to the fact that it is not the focus of the Talon funded work program.
- The conceptual development and exploitation plan only addresses the lowest geological risk areas but is considered reasonable at this stage of the project. It is reasonable to expect that that exploitation plan will change and evolve through execution of work program and acquisition of further data. Hence the valuation approach adopted (sunk costs and farm-in promote factors) does not consider project metrics and changes to the plan are not expected to affect the valuation.
- The lack of an access and coordination agreement with coal mining entities is considered relevant in the low case valuation. In RISC opinion it is likely that an agreement will be reached as all parties to such an agreement appear willing, although RISC is not aware of any precedent in-country. However, it is possible that such an agreement may not be concluded in a timely manner which may result in a deferral of the Talon funded Stage 1 and 2 farm-in work program. The discount applied in the low case estimate of Value reflects this outcome.

7.1.2. Valuation alternatives

RISC has considered as a comparable transaction the acquisition of Jade Gas Holdings Limited ('Jade') by High Grade Metals Limited in July 2021. [25]

Jade has equity in the coal seam gas exploration areas of the Tavan Tolgoi PSA and Baruun Naran area of the South Gobi Basin of Mongolia to the east of the Gurvantes XXXV PSA (refer Figure 3-2). This transaction constituted a reverse takeover of Jade and includes a significant takeover or control premium (Table 7-3).

Comparable transaction metrics based on this transaction and the Gurvantes XXXV valuation are shown in Table 7-4.

[25] Refer Jade acquisition prospectus, ASX release 14 July 2021

Table 7-3: High Grade Metals transaction summary

Date	Buyer	Seller	Transaction Value (AU$ million)	Acquired Stake	Net Unrisked Prospective Resources (Bcf)		
					Low	Best	High
July 2021	High Grade Metals Ltd	Jade Gas Pty Ltd	25.4	60 % of Tavan Tolgoi PSA & 66 % of Baruun Naran Area	138	669	1,960

Notes to the table:

1. Transaction value derived from issue of 846.2 million shares at AU$0.03
2. Jade stakes are beneficial interests through holdings in joint venture companies, not direct equity in the areas.
3. Unrisked prospective resources used, no risking available nor risked prospective resources.

Table 7-4: Comparable transaction metrics, Gurvantes XXXV PSA

	AU$/Boe Net Unrisked Prospective Resources		
	Low	Best	High
Jade transaction	$1.10	$0.23	$0.08
Gurvantes XXXV net Telmen	$0.03	$0.04	$0.05

Notes to the table:

1. Bcf to MMboe conversion = 6 Bcf to 1 MMboe
2. Gurvantes XXXV prospective resources restricted to Nariin Sukhait, Enkhen and Biluut Jargalant field areas (lowest geological risk (i.e. highest gPOS) areas with well-defined and proven coal measures) to maintain direct comparison to Jade Gas Tavan Tolgoi and Baruun Naran areas.
3. Low, best and high estimates of Telmen net Value used for calculation of AU$/Boe

As a result of the takeover premium in the Jade transaction, the transaction metrics (Table 7-4) are directly comparable to the net Telmen value on an AU$/Boe basis in the high case estimate of Value only. RISC therefore considers that the Jade transaction is a reasonable comparable transaction for the purposes of supporting the high estimate of Value, but not the low or best estimate of Value.

Due to the significant difference in area between Jade and Telmen assets (793 km^2 versus 8,399 km^2) comparable transaction metrics based on area are not considered appropriate.

Jade's reported sunk costs are US$1 million which are similar to the sunk costs as supplied by Telmen (US$1.5 million). Empirically, this would by means of comparison support the Gurvantes XXXV low estimate of Value being based on sunk and committed costs.

The Gurvantes XXXV work program commitment as specified in the PSA can also be used for valuation purposes. The work program commitment (refer Table 5-2) amounts to US$9 million gross (AU$12.6 million) and is viewed as a minimum work program commitment and is likely to be negotiable, or indeed exceeded, in the latter exploration periods.

RISC consider that this work program cost is comparable to and supports the best estimate of Value being AU$15.3 million (gross).

7.2. Talisman Deeps

RISC has assessed a fair market value of Tamaska's net interest in the Talisman Deeps petroleum rights and the Napoleon Prospect to be between AU$0.4 million and AU$8.0 million with a best estimate of AU$4.2 million (Table 7-5).

Table 7-5: Talisman Deeps valuation

	Valuation (AU$ million)		
	Low	**Best**	**High**
Talisman Deeps 100% Project	1.9	21.1	10.3
Net Tamaska	0.4	4.2	8.0
Valuation rationale	Sunk costs	Farm-in promote factor plus sunk costs	Farm-in promote factor plus sunk costs

Notes to the table:

1. Best and High estimates assume Tamaska does not participate in a farm-out and retains 20% working interest, following election to convert its 20% shareholding in Skye to a 20% direct interest in the Talisman Deeps petroleum rights.
2. Conversion rate of AU$1.4 to US$1 used.

RISC has considered in its determination of Value the sunk costs to date incurred by Tamaska and a potential future dated farm-out of the Talisman Deeps project with a farminee paying a promote on the drilling of a Napoleon Prospect exploration well.

Specifically:

- Tamaska has advised that the sunk costs to date net to Tamaska are AU$0.37 million, and
- Napoleon Prospect exploration well cost (dry-hole basis) AU$38.4 million as provided by Tamaska.

7.2.1. Valuation assumptions and summary

RISC consider the sunk cost method as the most appropriate method for determining the low estimate of Value. For the best and high case determination of Value, RISC has used the farm-in promote factor methodology plus undiscounted sunk costs.

In determining the best and high case estimates of Value, it is assumed that Tamaska do not participate in a farm-out and retain their 20 % participating equity in Talisman Deeps and fund their equity share of the Napoleon exploration well. Tamaska may elect to farm-out some of its equity and this will affect the ascribed net Tamaska Value. However, it is reasonable to assume that Tamaska will not seek to dilute its equity.

The farm-out market for offshore Australia exploration opportunities remains subdued. The market factor which predominantly influences this is industry sentiment post the 2014 oil price decline. This has been exacerbated by volatility in the oil price due to the COVID-19 global pandemic. Prior to the oil price decline interest in petroleum exploration opportunities and competition for quality exploration opportunities witnessed farm-ins with promotes of 2:1 or more.

A selection of offshore Northwest shelf farm-in transactions and their farm-in promote factors is shown in Table 7-6. RISC consider that petroleum exploration projects remain difficult to farm-out at what has been a traditional 2:1 promote on exploration well costs. However, RISC notes the recently announced farm-outs by Western Gas of the Sasanof Prospect in the WA-519-P Exploration Permit on a 2:1 promote. [26] [27]

Table 7-6: Comparable transaction metrics, Talisman Deeps

Date	Farminee	Vendor	Asset	Farm-in Promote Factor
October 2016	BP	Cue Energy	WA-359-P & WA-409-P (Ironbark Prospect)	1.1 : 1
November 2017	Beach	Cue Energy	WA-359-P & WA-409-P (Ironbark Prospect)	Ground floor
September 2018	Sapura	Finder Energy	EP 483 & TP/25 (Eagle Prospect), WA-412-P (Kanga Prospect), AC/P 61 (Gem Prospect)	1.4 : 1
October 2018	NZOG	Cue Energy	WA-359-P & WA-409-P (Ironbark Prospect)	Ground floor
September 2021	Global Oil & Gas	Western Gas	WA-519-P (Sasanof Prospect)	2 : 1
December 2021	Prominence Energy	Western Gas	WA-519-P (Sasanof Prospect)	2 : 1

Notes to the table:
1. Ground floor is where incoming party pays its equity share of an activity without a farm-in promote or premium.

[26] Refer Western Gas news release 7 September 2021 (https://www.westerngas.com.au/sites/default/files/Western%20Gas%20GLV%20Announcement%2020210907.pdf)
[27] Refer Prominence Energy ASX release 7 December 2021

As seen in Table 7-6, prior to the recent WA-519-P Sasanof Prospect farm-in transactions, farm-in transactions for Northwest shelf opportunities have varied between ground-floor terms (*i.e.* no farm-in promote factor) and a farm-in promote factor of 1.4:1.

For Talisman Deeps and the Napoleon Prospect, RISC consider that a 1.5:1 promote factor is appropriate for a best estimate of Value rather than a farm-in promote factor of 1.1:1 to 1.4:1. This is based on an apparent improvement in industry sentiment towards exploration opportunities as a result of sustained higher oil prices and the anticipated demand increase for petroleum products as global pandemic restrictions are lifted.

RISC consider that for a best estimate of Value a 1.5:1 promote factor is appropriate rather than 2:1 farm-in promote as for the Sasanof Prospect for the following reasons:

- Napoleon Prospect geological chance of success is lower than Sasanof Prospect (24% versus 32%);
- Exploration well costs are AU$38.4 million (gross) for Napoleon Prospect and US$20 million (AU$28 million, gross) for the Sasanof Prospect, and
- WA-519-P exploration permit containing the Sasanof Prospect has additional exploration potential, whereas WA-8-L and Talisman Deeps is not considered to have exploration prospectivity outside of the Napoleon Prospect.

However, for the high estimate of Value, RISC consider that a 2:1 promote factor is appropriate.

The valuation method and analysis are detailed in Table 7-7.

The low estimate of Value is based on the sunk costs as advised by Tamaska (AU$0.4 million net Tamaska) which would therefore indicate a gross project valuation of AU$1.9 million. As these costs have been recently accrued no discount or uplift has been applied.

The best estimate of Value was determined assuming that Skye seeks to farm-out 40% of its equity in Talisman Deeps in return for a partial carry (assumed 1.5:1 farm-in promote) on the costs of the drilling of the Napoleon Prosect exploration well, whilst Tamaska do not participate and retain their 20% equity. The farm-in or buyer premium borne by the farminee in excess of the equity share of the costs (AU$15.4 million) amounts to AU$7.7 million, implying a gross project premium value of AU$19.2 million. RISC has used this gross premium value plus undiscounted sunk costs to determine the best estimate of Value (AU$21.1 million gross, AU$4.2 million net Tamaska).

For the high case estimate of Value, with an assumed 2:1 farm-in promote, the farm-in or buyer premium borne by the farminee in excess of the equity share of the costs (AU$15.4 million) amounts to AU$15.4 million, implying a gross project premium value of AU$38.4 million. RISC has used this gross premium value plus undiscounted sunk costs to determine the best estimate of Value (AU$40.3 million gross, AU$8.0 million net Tamaska).

Table 7-7: Talisman Deeps valuation analysis

Valuation Method & Analysis	Factor or Cost
Low Estimate – Sunk Costs	
Sunk costs to date (net Tamaska)	AU$0.4 million
Discount applied to sunk costs	0 %
Implied project value	AU$1.9 million
Valuation net Tamaska	**AU$0.4 million**
Best Estimate – Farm-out	
Napoleon exploration well cost	AU$38.4 million
Assumed farm-out equity	40 %
Farm-in promote factor	1.5 : 1
Transaction costs	AU$23.1 million
Ground floor costs of exploration well (40 % equity)	AU$15.4 million
Farm-in premium	AU$7.7 million
Implied project premium value (gross)	AU$19.2 million
Project value – gross premium value plus sunk costs	AU$21.1 million
Valuation net Tamaska	**AU$4.2 million**
High Estimate – Farm-out	
Napoleon Prospect exploration well cost	AU$38.4 million
Assumed farm-out equity	40 %
Farm-in promote factor	2 : 1
Transaction costs	AU$30.8 million
Ground floor costs of exploration well (40 % equity)	AU$15.4 million
Farm-in premium	AU$15.4 million
Implied project premium value (gross)	AU$38.4 million
Project value – gross premium value plus sunk costs	AU$40.3 million
Valuation net Tamaska	**AU$8.0 million**

Notes to the table:

1. Best and High estimates assume Tamaska does not participate in a farm-out and retains 20% working interest, following election to convert its 20% shareholding in Skye to a 20% direct interest in the Talisman Deeps petroleum rights.
2. Napoleon Prospect well cost as provided by Tamaska is AU$38.4 million including some +/- contingency in its estimate.
3. Best and High estimates assume Skye farm-out 40% equity.
4. Costs are in AU$. Conversion rate of AU$1.4 to US$1 used.

In determining Value, RISC has taken into consideration factors that may affect the valuation. Specifically:

- As discussed in Section 6.3.1 overall RISC consider the geological risk assessment reasonable, but potentially optimistic in the high case outcome due to the trap and seal risk. In RISC opinion, this does not impact the low case estimate of Value and is accounted for in the best estimate of Value with the assumed 1.5:1 farm-in promote. If the prospect has less risk (*i.e.* higher gPOS) then it could be expected that a higher farm-in promote factor could be possible, such as the Sasanof Prospect example.
- The apportionment of best-case outcome GRV and hence 2U or best estimate of on-block prospective resources is likewise considered optimistic. This is also accounted for in the assumed 1.5:1 farm-in promote in the best estimate of Value.
- It is assumed in the best and high case estimates of Value that Tamaska do not participate in a farm-out and retain their 20 % participating equity in Talisman Deeps and fund their equity share of the Napoleon exploration well. However, Tamaska may elect to farm-out some of its equity and this will consequently affect the ascribed net Tamaska Value. However, it is reasonable to assume that Tamaska will not seek to dilute its equity and net valuation unless additional value is realised (*i.e.* cash consideration or other beneficial terms).
- RISC has not considered any cash consideration or contribution to past costs in the best or high case estimates of Value. For the reasons described above (risk assessment and apportionment of on-block prospective resources), RISC consider this appropriate.

7.2.2. Valuation alternatives

Given the limited number of recent comparable transactions in the Carnarvon Basin other than the aforementioned Sasanof Prospect farm-in, RISC consider the valuation based on farm-in promotion factors as the most appropriate method of valuation.

Tamaska acquired its interest in the Talisman Deeps petroleum rights in February 2021, issuing 45 million ordinary shares and 45 million performance shares[28]. The performance shares have subsequently been converted[29]. The nominal value of these shares is AU$0.82 million. RISC do not consider this transaction as a comparable transaction due to the value accretion undertaken by the completion of the 3D seismic reprocessing and interpretation over the Napoleon Prospect.

Further to this, the WA-8-L license and Talisman Deeps petroleum rights do not have an associated work program commitment. As a result, the work program method of valuation is not applicable.

[28] Refer Tamaska ASX release 22 February 2021.
[29] Refer Tamaska ASX release 29 October 2021

8. Declarations

8.1. Terms of engagement

This report, any advice, opinions or other deliverables are provided pursuant to the Engagement Contract agreed to and executed by the Client and RISC.

8.2. Qualifications

RISC is an independent oil and gas advisory firm. All of the RISC staff engaged in this assignment are professionally qualified engineers, geoscientists or analysts, each with many years of relevant experience and most have in excess of 20 years.

RISC was founded in 1994 to provide independent advice to companies associated with the oil and gas industry. Today the company has approximately 40 highly experienced professional staff at offices in Perth, Brisbane, Jakarta and London. We have completed over 2,000 assignments in 70+ countries for nearly 500 clients. Our services cover the entire range of the oil and gas business lifecycle and include:

- Oil and gas asset valuations, expert advice to banks for debt or equity finance;
- Exploration/portfolio management;
- Field development studies and operations planning;
- Reserves assessment and certification, peer reviews;
- Gas market advice;
- Independent Expert/Expert Witness;
- Strategy and corporate planning.

The preparation of this report has been managed by Mr Adam Craig who is an employee of RISC. Mr Craig is a highly experienced Geoscientist and Manager, with over 30 years' experience in the upstream oil & gas sector working for small and mid-size independents, as well as NOC related entities. He is a member and Certified Practising Geologist (#6446) of the AAPG. Adam is also a member of PESA (2021 WA Branch President) and a Fellow of the Geological Society. He holds BSc in Geology from Curtin University, Western Australia and is a qualified petroleum reserves and resources evaluator (QPRRE) as defined by ASX listing rules.

8.3. Standard

Reserves and resources are reported in accordance with the definitions of reserves, contingent resources and prospective resources and guidelines set out in the Petroleum Resources Management System (PRMS) prepared by the Oil and Gas Reserves Committee of the Society of Petroleum Engineers (SPE) and reviewed and jointly sponsored by the American Association of Petroleum Geologists (AAPG), World Petroleum Council (WPC), Society of Petroleum Evaluation Engineers (SPEE), Society of Exploration Geophysicists (SEG), Society of Petrophysicists and Well Log Analysts (SPWLA) and European Association of Geoscientists and Engineers (EAGE), revised June 2018.

This Report has been prepared in accordance with the Australian Securities and Investment Commission (ASIC) Regulatory Guides 111 and 112.

8.4. Limitations

The assessment of petroleum assets is subject to uncertainty because it involves judgments on many variables that cannot be precisely assessed, including reserves/resources, future oil and gas production rates, the costs associated with producing these volumes, access to product markets, product prices and the potential impact of fiscal/regulatory changes.

The statements and opinions attributable to RISC are given in good faith and in the belief that such statements are neither false nor misleading. While every effort has been made to verify data and resolve apparent inconsistencies, neither RISC nor its servants accept any liability, except any liability which cannot be excluded by law, for its accuracy, nor do we warrant that our enquiries have revealed all of the matters, which an extensive examination may disclose. In particular, we have not independently verified property title, encumbrances or regulations that apply to these assets.

Our review was carried out only for the purpose referred to above and may not have relevance in other contexts.

8.5. Independence

RISC makes the following disclosures:

- RISC is independent with respect to Telmen and confirms that there is no conflict of interest with any party involved in the assignment.
- Under the terms of engagement between RISC and Telmen, RISC will receive a time-based fee, with no part of the fee contingent on the conclusions reached, or the content or future use of this report. Except for these fees, RISC has not received and will not receive any pecuniary or other benefit whether direct or indirect for or in connection with the preparation of this report.
- Neither RISC Directors nor any staff involved in the preparation of this report have any material interest in Telmen or in any of the properties described herein.

8.6. Copyright

8.7. Consent

RISC has consented to this report, in the form and context in which it appears, being included, in its entirety, in the Notice of Meeting. Neither the whole not any part of this report nor any reference to it may be included or attached to any other document, circular, resolution, letter or statement without the prior consent of RISC.

9. List of terms

The following lists, along with a brief definition, abbreviated terms that are commonly used in the oil and gas industry and which may be used in this report.

Term	Definition
1P	Equivalent to Proved reserves or Proved in-place quantities, depending on the context.
1Q	1st Quarter
2P	The sum of Proved and Probable reserves or in-place quantities, depending on the context.
2Q	2nd Quarter
2D	Two Dimensional
3D	Three Dimensional
4D	Four Dimensional – time lapsed 3D in relation to seismic
3P	The sum of Proved, Probable and Possible Reserves or in-place quantities, depending on the context.
3Q	3rd Quarter
4Q	4th Quarter
AFE	Authority for Expenditure
Bbl	US Barrel
BBL/D	US Barrels per day
BCF	Billion (10^9) cubic feet
BCM	Billion (10^9) cubic metres
BFPD	Barrels of fluid per day
BOPD	Barrels of oil per day
BTU	British Thermal Units
BOEPD	US barrels of oil equivalent per day
BWPD	Barrels of water per day
°C	Degrees Celsius
Capex	Capital expenditure
CAPM	Capital asset pricing model
CGR	Condensate Gas Ratio – usually expressed as bbl/MMscf
Contingent Resources	Those quantities of petroleum estimated, as of a given date, to be potentially recoverable from known accumulations by application of development projects but which are not currently considered to be commercially recoverable due to one or more contingencies. Contingent Resources are a class of discovered recoverable resources as defined in the SPE-PRMS.
CO_2	Carbon dioxide
CP	Centipoise (measure of viscosity)
CPI	Consumer Price Index
DEG	Degrees
DHI	Direct hydrocarbon indicator
Discount Rate	The interest rate used to discount future cash flows into a dollars of a reference date
DST	Drill stem test
E&P	Exploration and Production
EG	Gas expansion factor. Gas volume at standard (surface) conditions/gas volume at reservoir conditions (pressure and temperature)
EIA	US Energy Information Administration

Term	Definition
EMV	Expected Monetary Value
EOR	Enhanced Oil Recovery
ESMA	European Securities and Markets Authority
ESP	Electric submersible pump
EUR	Economic ultimate recovery
Expectation	The mean of a probability distribution
F	Degrees Fahrenheit
FDP	Field Development Plan
FEED	Front End Engineering and design
FID	Final investment decision
FM	Formation
FPSO	Floating Production Storage and offtake unit
FWL	Free Water Level
FVF	Formation volume factor
GIIP	Gas Initially In Place
GJ	Giga (10^9) joules
GOC	Gas-oil contact
GOR	Gas oil ratio
GRV	Gross rock volume
GSA	Gas sales agreement
GTL	Gas To Liquid(s)
GWC	Gas water contact
H_2S	Hydrogen sulphide
HHV	Higher heating value
ID	Internal diameter
IRR	Internal Rate of Return is the discount rate that results in the NPV being equal to zero.
JV(P)	Joint Venture (Partners)
Kh	Horizontal permeability
km^2	Square kilometres
Krw	Relative permeability to water
Kv	Vertical permeability
kPa	Kilo (thousand) Pascals (measurement of pressure)
Mstb/d	Thousand Stock tank barrels per day
LIBOR	London inter-bank offered rate
LNG	Liquefied Natural Gas
LTBR	Long-Term Bond Rate
m	Metres
MDT	Modular dynamic (formation) tester
mD	Millidarcies (permeability)
MJ	Mega (10^6) Joules
MMbbl	Million US barrels
MMscf(d)	Million standard cubic feet (per day)

Term	Definition
MMstb	Million US stock tank barrels
MOD	Money of the Day (nominal dollars) as opposed to money in real terms
MOU	Memorandum of Understanding
Mscf	Thousand standard cubic feet
Mstb	Thousand US stock tank barrels
MPa	Mega (10^6) pascal (measurement of pressure)
mss	Metres subsea
MSV	Mean Success Volume
mTVDss	Metres true vertical depth subsea
MW	Megawatt
NPV	Net Present Value (of a series of cash flows)
NTG	Net to Gross (ratio)
ODT	Oil down to
OGIP	Original Gas In Place
OOIP	Original Oil in Place
Opex	Operating expenditure
OWC	Oil-water contact
P90, P50, P10	90%, 50% & 10% probabilities respectively that the stated quantities will be equalled or exceeded. The P90, P50 and P10 quantities correspond to the Proved (1P), Proved + Probable (2P) and Proved + Probable + Possible (3P) confidence levels respectively.
PBU	Pressure build-up
PJ	Peta (10^{15}) Joules
POS	Probability of Success
Possible Reserves	As defined in the SPE-PRMS, an incremental category of estimated recoverable volumes associated with a defined degree of uncertainty. Possible Reserves are those additional reserves which analysis of geoscience and engineering data suggest are less likely to be recoverable than Probable Reserves. The total quantities ultimately recovered from the project have a low probability to exceed the sum of Proved plus Probable plus Possible (3P) which is equivalent to the high estimate scenario. When probabilistic methods are used, there should be at least a 10% probability that the actual quantities recovered will equal or exceed the 3P estimate.
Probable Reserves	As defined in the SPE-PRMS, an incremental category of estimated recoverable volumes associated with a defined degree of uncertainty. Probable Reserves are those additional Reserves that are less likely to be recovered than Proved Reserves but more certain to be recovered than Possible Reserves. It is equally likely that actual remaining quantities recovered will be greater than or less than the sum of the estimated Proved plus Probable Reserves (2P). In this context, when probabilistic methods are used, there should be at least a 50% probability that the actual quantities recovered will equal or exceed the 2P estimate.
Prospective Resources	Those quantities of petroleum which are estimated, as of a given date, to be potentially recoverable from undiscovered accumulations as defined in the SPE-PRMS.
Proved Reserves	As defined in the SPE-PRMS, an incremental category of estimated recoverable volumes associated with a defined degree of uncertainty Proved Reserves are those quantities of petroleum, which by analysis of geoscience and engineering data, can be estimated with reasonable certainty to be commercially recoverable, from a given date forward, from known reservoirs and under defined economic conditions, operating methods, and government regulations. If deterministic methods are used, the term reasonable certainty is intended to express a high degree of confidence that the quantities will be recovered. If probabilistic methods are used, there should be at least a 90% probability that the quantities actually recovered will equal or exceed the estimate. Often referred to as 1P, also as “Proven”.
PSC	Production Sharing Contract
PSDM	Pre-stack depth migration
PSTM	Pre-stack time migration

Term	Definition
psia	Pounds per square inch pressure absolute
p.u.	Porosity unit e.g. porosity of 20% +/- 2 p.u. equals a porosity range of 18% to 22%
PVT	Pressure, volume & temperature
QA/QC	Quality Assurance/ Control
rb/stb	Reservoir barrels per stock tank barrel under standard conditions
RFT	Repeat Formation Test
Real Terms (RT)	Real Terms (in the reference date dollars) as opposed to Nominal Terms of Money of the Day
Reserves	RESERVES are those quantities of petroleum anticipated to be commercially recoverable by application of development projects to known accumulations from a given date forward under defined conditions. Reserves must further satisfy four criteria: they must be discovered, recoverable, commercial, and remaining (as of the evaluation date) based on the development project(s) applied. Reserves are further categorised in accordance with the level of certainty associated with the estimates and may be sub-classified based on project maturity and/or characterized by development and production status.
RT	Measured from Rotary Table or Real Terms, depending on context
SC	Service Contract
scf	Standard cubic feet (measured at 60 degrees F and 14.7 psia)
Sg	Gas saturation
Sgr	Residual gas saturation
SRD	Seismic reference datum lake level
SPE	Society of Petroleum Engineers
SPE-PRMS	Petroleum Resources Management System, prepared by the Oil and Gas Reserves Committee of the Society of Petroleum Engineers (SPE) and reviewed and jointly sponsored by the American Association of Petroleum Geologists (AAPG), World Petroleum Council (WPC), Society of Petroleum Evaluation Engineers (SPEE), Society of Exploration Geophysicists (SEG), Society of Petrophysicists and Well Log Analysts (SPWLA) and European Association of Geoscientists and Engineers (EAGE), revised June 2018.
s.u.	Fluid saturation unit. e.g. saturation of 80% +/- 10 s.u. equals a saturation range of 70% to 90%
stb	Stock tank barrels
STOIIP	Stock Tank Oil Initially In Place
Sw	Water saturation
TCM	Technical committee meeting
Tcf	Trillion (10^{12}) cubic feet
TJ	Tera (10^{12}) Joules
TLP	Tension Leg Platform
TRSSV	Tubing retrievable subsurface safety valve
TVD	True vertical depth
US$	United States dollar
US$ million	Million United States dollars
WACC	Weighted average cost of capital
WHFP	Well Head Flowing Pressure
Working interest	A company's equity interest in a project before reduction for royalties or production share owed to others under the applicable fiscal terms.
WPC	World Petroleum Council
WTI	West Texas Intermediate Crude Oil