

## Opportunity to participate in the Cooper-Eromanga Basins Western Oil Flank (PEL 512 - 584,651 Acres)

**Discovery Energy ("DENR") is preparing for drilling on its 100% owned PEL 512 permit located in the Cooper-Eromanga Basins, South Australia**

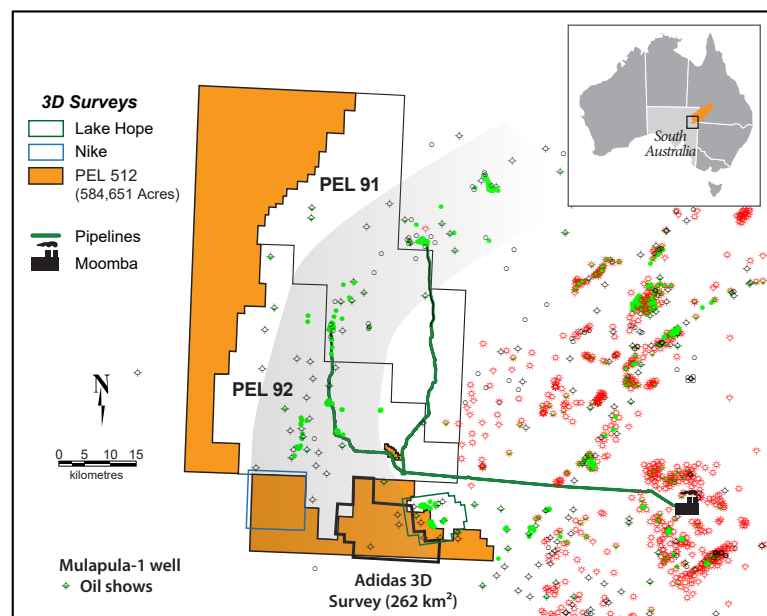
- ▶ Permit is 2,366 km<sup>2</sup> (584,651 acres)
- ▶ In Year 3 of the Initial 5 year Licence term (15 years)
- ▶ Adjacent to mature production and new discoveries
  - ▶ Tantanna Oil Field (1988) produced >8.0MMbbls
  - ▶ Sturt & Sturt East Fields (1988) produced >2.9MMbbls
  - ▶ Callawonga Oil Field (2006) produced >8.4MMbbls
  - ▶ Parsons Oil Field (2008) produced >4.6MMbbls
  - ▶ Butlers Oil Field (2009) produced >3.6MMbbls
  - ▶ Bauer Oil Field (2013) produced >32.1MMbbls
  - ▶ Bauer Oil Field (07/20) produced ~20,000 Bopd
  - ▶ Bauer-5 Well (02/14) peak production ~7,700 Bopd

Source: PEPS - Production data as of 09/30/22

### Investment Opportunity

- ▶ Acreage is strategically located (PEL 512) in the Western Oil Flank of the Cooper/Eromanga basin immediately offset from where Beach Energy is developing acreage with success rates on exploration wells of ~45% and with operating costs of ~A\$5/bbl.
- ▶ Oil shows in the Mulapula well (see inset map) suggest oil migrated from the east of PEL 512 with the theory supported by petrophysical data.
- ▶ High production rates from multi-pay reservoirs with excellent properties in the Namur with up to 30% porosity and multi-Darcy permeability, low gas/oil ratio (GOR) and low residual oil saturation driven by a world class water drive.
- ▶ Petrophysics and reservoir analysis using 5,153 km of 2D seismic and 321 km<sup>2</sup> of 3D suggests the licence is highly prospective for conventional oil with a resource estimate of 2,100 Mmboe of oil in place (OOIP) and 656 Mmbo of prospective unrisked recoverable oil (P50).<sup>(1)</sup>
- ▶ An initial 18 prospects have been inventoried with five (5) high graded locations cleared and surveyed for drilling. Structural and stratigraphic prospects were developed using advanced AVO analysis.
- ▶ 110,000 acres has been deemed by PIRSA as proven oil fairway which will permit the future conversion of up to 220,000 acres to Petroleum Retention Licences (PRL).
- ▶ Beach Energy reported 75 oil wells were drilled in the Cooper Basin in FY2020, it included 26 horizontal wells in the which were successfully cased and suspended as future producers.

### Area of Interest



Map 1 – Western Oil Flank, Cooper & Eromanga Basins, South Australia.

(1) Rincon Energy, PEL 512 Prospective Recoverable Oil Resources Report - 2022

## Drill Ready Prospects

- ▶ Discovery has developed an inventory of over 30 leads in the Nike 3D Survey Area (178 km<sup>2</sup>).
- ▶ The initial resource estimate for the Nike 3D Area is 63.15 Mmbbls (P10), 37.41 Mmbbls (P50) and 11.94 Mmbbls (P90).<sup>(1)</sup>
- ▶ An initial 18 prospects have been inventoried with five (5) high graded locations cleared and surveyed for drilling.
- ▶ Structural and stratigraphic prospects were developed using advanced AVO analysis.
- ▶ Conventional wells with stacked pay above 6,000 feet in the Namur, Birkhead, Hutton and Poolowanna formations.

## Prospective Recoverable Resource

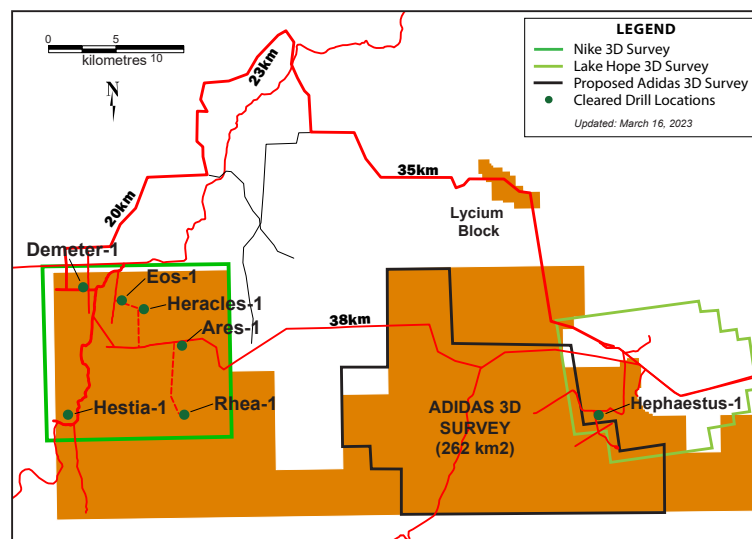
Nike Prospects	Min (Mmbbls) P90	Likely (Mmbbls) P50	Max (Mmbbls) P10
Rhea	1.59	5.04	11.45
Ares	1.98	3.89	7.0
Hestia	1.51	3.11	5.69
Eos	0.52	1.23	2.47
Heracles	0.36	0.72	1.29
Demeter	0.24	0.47	0.82
<b>Total</b>	<b>6.2</b>	<b>14.46</b>	<b>28.72</b>

Source: Rincon Energy, Nike Resource Report - 2022

## Prospect Attributes

All of the prospects except for Demeter are conventional prospects with structures and trapping styles analogous to the production in the nearby producing fields:

- ▶ Rhea - closures in the Namur (186 Acres) and Hutton (106 Acres).
- ▶ Ares - closures in the Namur (174 Acres), Hutton (208 Acres), Poolowanna (108 Acres).
- ▶ Hestia - closures in the Namur (152 Acres) and Poolowanna (539 Acres).
- ▶ Eos - closures in the Namur (107 Acres) and Poolowanna (79 Acres).
- ▶ Heracles - closures in the Namur (63 Acres) and Poolowanna (107 Acres).
- ▶ Demeter - closure in the Birkhead Channel sands (66 Acres).



Map 2 – Cleared and drill-ready Nike & Lake Hope well locations.

## Petroleum System and Reservoirs

- ▶ Complex lateral and vertical migration from Permian/Triassic source rock through high permeability Jurassic carrier beds to reservoir/seal.
- ▶ Reservoir properties in the Namur are excellent with up to 30% porosity and multi-Darcy permeability, low gas/oil ratio (GOR) and low residual oil saturation.
- ▶ Unlimited aquifer strength (Great Artesian Basin) with Namur oil recovery factor greater than 75%.
- ▶ Initial free-flow production rates commonly exceed 6,000 barrels per day.
- ▶ 40-50 API gravity oil with no sulphur or heavy metals.

## Nike Drill Prospects VuPAK Map

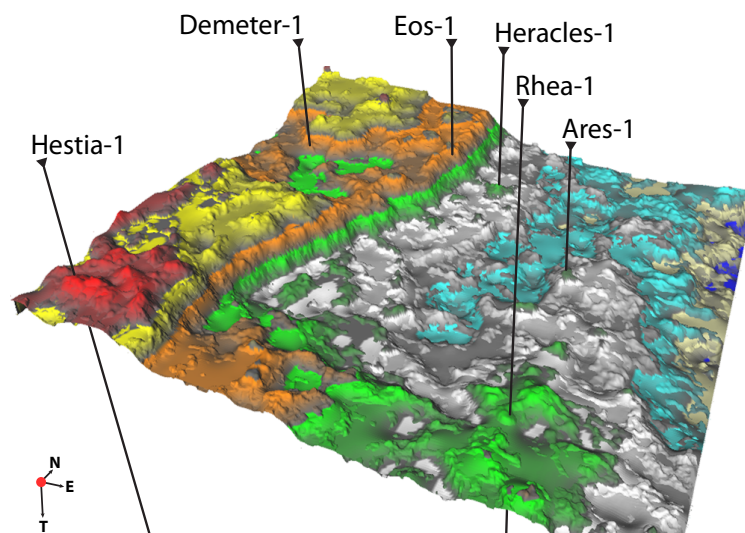


Figure 1 – 3D interpretation of the Nike Survey Area.



## Rhea Drill-Ready Prospect

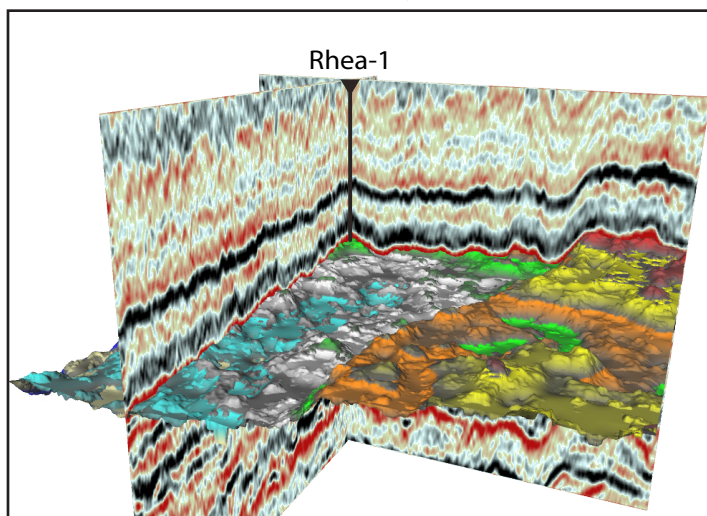


Figure 2 – Rhea Prospect with primary targets in the Namur and Hutton closures (P50 estimate - 5.04 Mmbo).

## AI-based Digital Twin utilized for the Nike Drilling and Development Strategy

Geoteric's latest Artificial Intelligence (AI) Technology, Geoteric Stratum™ for fault detection was applied. Although the seismic within this study was of good quality, Geoteric's data conditioning workflow was applied to improve the signal-to-noise ratio, to increase the vertical resolution and thus decrease the number of false positives to enable the AI to detect smaller-scale faults.

The Late Carboniferous to Triassic Cooper Basin is overlain by the fluvio-lacustrine and marginal marine sediments of the Early Jurassic – Late Cretaceous Eromanga Basin. The two main challenges in this basin are the faults and the understanding of the fluvial systems in the Hutton and Namur Sandstones and the Birkhead Formation which provides the sealing unit. Fault structure plays a fundamental part in this petroleum system; faults and sub-crops are the main migration pathways used to charge the reservoirs but also to compromise the seal. Being able to map all the faults (their full vertical and lateral extent) and to understand their nature is critical (Figure 3).

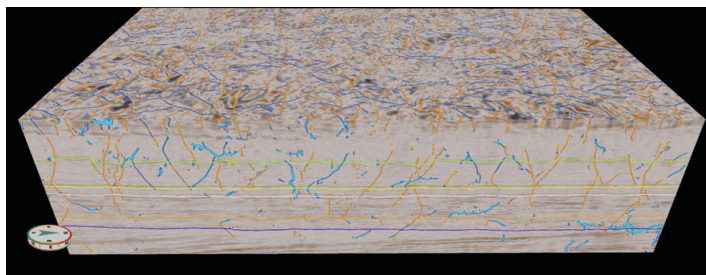


Figure 3 – Results from the foundation network mapped on the Coorik surface (grayscale colourmap) and a slice (colourmap shows confidence). © Geoteric.

## Hephaestus Drill-Ready Prospect

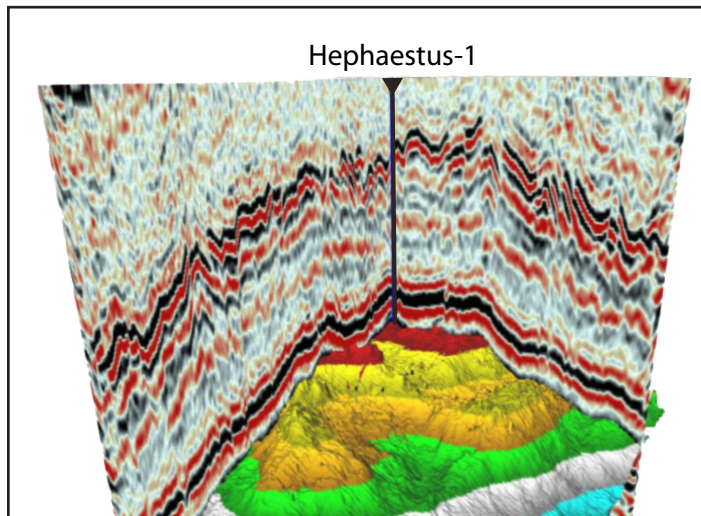


Figure 4 – Hepaestus Prospect with primary targets in the Namur, Hutton and Poolowanna (P50 estimate - 3.37 Mmbo).

The dataset was processed using Geoteric's AI foundation network, quickly revealing many vertical and lateral faults, whilst providing a complete interpretation of the 4-way dip closures, 3-way fault traps and 3-way subcrops which are the preliminary trapping mechanisms.

Analysis was taken a step further by combining the geobody with the faults classified as open or closed (Figure 5). This extra information allowed us to determine which compartments are possibly in communication or if the faults compromise the seal, and what compartments are possibly already drained and have no remaining hydrocarbons.

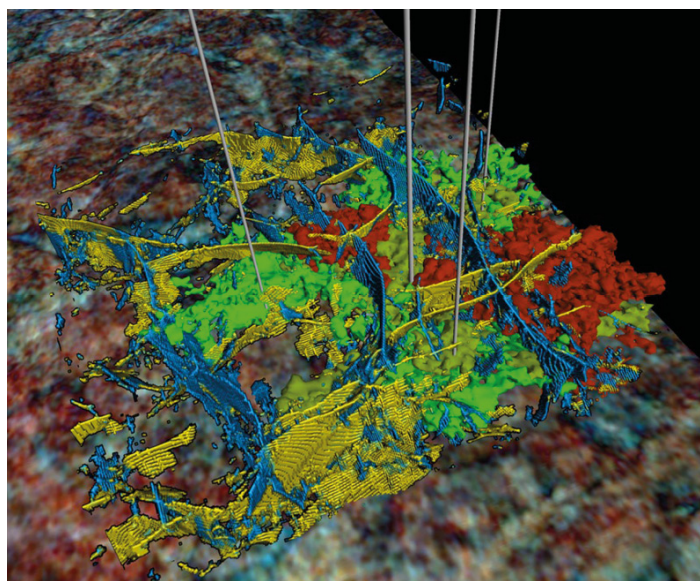


Figure 5 – Combination of 3-dimensional geobodies with 3D rendered AI faults. Blue faults are closed, and yellow faults are open. Geobodies represent different frequency responses of a channel and surrounding area. © Geoteric.

## Revised and Reduced Work Program

Work Year	Original Work Program	YE Oct 26	Amended Work Program	YE Jan 28
1	Geological Studies	N/A	Geological Studies	N/A
2	250 km 2D Seismic	2014	200 km <sup>2</sup> 3D Seismic	2017
3	Drill 2 wells 400 km <sup>2</sup> 3D Seismic	2015	350 km <sup>2</sup> 3D Seismic	2023
4	Drill 5 wells	2016	Drill 3 wells	2024
5	Drill 5 wells	2017	Drill 4 wells	2025
<b>Total</b>	<b>12 wells/2D-250km/3D-400km<sup>2</sup></b>		<b>7 wells/3D-550km<sup>2</sup></b>	

## Offset Well Economics

Well Program (\$US 000)	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9
Monthly Net Revenue	831	756	736	672	656	621
LOE	(209)	(203)	(185)	(181)	(171)	(157)
Transport	(34)	(33)	(30)	(29)	(28)	(25)
Production Tax	(17)	(15)	(15)	(13)	(13)	(12)
Operating Cash	572	505	506	448	444	426
Cum Operating Cash	1,457	1,962	2,468	2,916	3,360	3,786
<b>Well Type/Cum Net Cash</b>						
Exploration (Cost \$1,965)	(844)	(339)	167	615	1,059	1,485
Appraisal (Cost \$1,558)	(489)	16	521	969	1,413	1,839
Development (Cost \$1,292)	(186)	319	825	1,273	1,717	2,143

*Estimated payback model for typical Cooper Basin wells based on an initial production rate of 640 bopd using a flat Brent US\$60 bbl oil*

## Recent Developments

- ▶ The Company completed a series of debenture financings totalling USD\$6.8 Million which was used to complete the Nike 3D survey (180 km<sup>2</sup>) and conduct a regional AVO analysis.
- ▶ In April 2023, the Company completed the acquisition of 262 km<sup>2</sup> of 3D seismic (Adidas Survey) targeting >100 MMBO (P50) which will add multiple prospects for future drilling programs.

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## Compelling Economics

- ▶ Low cost (~AUD\$2.5m) vertical wells with high quality reservoirs, stacked pay and high flow rates deliver quick payback, compelling IRR's and rapid value creation.
- ▶ Early cash flows as a result of quick drill and tie-in periods, nearby operator reported record of 42 days from discovery to production.
- ▶ High net backs per barrel, Brent pricing with premium for light sweet crude (40-55 API).
- ▶ Ready market access via the Moomba regional oil processing facility through short haul trucking or existing and expanding pipeline capacity.

## Share Structure

Stock Symbol:	DENR: OTC Markets
Year End:	Feb 28
Shares Issued:	154 M
Held at DTC:	5.7 M

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