

Warrego Energy Limited (ASX: WGO)

Well testing results – 69 MMscfd flowrate from Kingia formation

Overview

The West Erregulla-2 well achieved a maximum flowrate of 69 MMscfd from the Kingia sandstone, confirming excellent reservoir quality and production potential. The rate was constrained by surface equipment and was achieved through production tubing 40% smaller than the Waitsia-4 well. This result, combined with increased net pay for the Kingia formation reported in late September, indicates the resource may be larger than the pre-drill mid-case estimate of 1,163 bcf. We retain our base case valuation of \$0.63/sh, pending independent resource assessment expected before year end, with further upside as commercial derisking occurs.

Key points

Waitsia analogue: Warrego has a 50% non-operated interest in EP 469, adjacent to the large (786 bcf gross 2P) Waitsia gas project (Beach/ Mitsui), ~300 km north of Perth. The West Erregulla-2 well targeted the same formations that are productive at Waitsia. Strike Energy is operator.

Testing status: The JV completed wireline logging and side-wall coring from the Kingia formation in September. Limited information was obtained from the High Cliff formation, due to washout believed due to high porosity zones. Flow testing was conducted on the Kingia formation in October.

Kingia wireline logging: Results of wireline logging were better than expected, with net pay (i.e. reservoir thickness) increasing by 41% to 58 m. Calculated permeability of 102 mD was significantly better than predicted (and similar to the permeability reported at Waitsia-1) and will be validated with laboratory testing of side wall cores. Strike reported that gas pressure of 6,814 to 6,828 psia indicates a gross gas column height of 220 m, in line with its modelling of field areal extent. Gas composition was 92% methane with relatively low CO₂ of 5.8%, supportive of simple gas processing.

Kingia flow testing: Three intervals totaling 48 m from 4,799-4,851 m depth were perforated and flowed at varying choke sizes. Only the maximum rate was disclosed, with 69 MMscfd achieved on a 2-inch choke at ~700 psig well head pressure over a 1-hour period, through 3.5" tubing. In comparison, Waitsia-4 flowed at 90 MMscfd on a 1.5-inch choke over a 23-minute period through larger 4.5" tubing. Strike noted WE-2 testing exceeded expectations and was consistent with other high-rate North Perth Basin wells.

Upside potential: WE-2 is the thickest net gas column observed in Kingia formation in the Perth Basin to date. A comparison of Waitsia and WE wells is provided in this report. Confirmation of WE resource volumes will require an independent resource assessment, expected shortly. The upgraded net pay suggests the Kingia gas resource may exceed the pre-drill mid-case estimate. Should Beach/Mitsui's Beharra Deep well, currently being drilled, prove successful the North Perth Basin will offer multi-tcf of recoverable conventional gas, establishing a new gas province and triggering likely corporate interest.

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SHARE PRICE PERFORMANCE



Closing price as of 24th Oct 2019

CAPITALIZATION	
Last price	\$0.365
52-week range	\$0.02-0.42
Capitalization	\$258m
Cash: 30 Jun	\$7m
Debt: 30 Jun	\$0m
EV	\$251m
Shares	708.1m
Options/rights	7.7m
Conv Notes	-
Balance date	June
RESERVES AND PRODUCTION	
1P (30 Jun 19)	0.00 MMboe
2P "	0.00 MMboe
3P "	0.00 MMboe
2C "	0.00 MMboe
FY18a	0.00 MMboe
FY19e	0.00 MMboe
FY20e	0.00 MMboe
SHAREHOLDERS (%)	
Board	~53.1
* includes unissued founders shares	
LEADERSHIP	
Chairman	Greg Columbus
MD/CEO	Dennis Donald

Disclosure: This is a commissioned research report and K1 Capital will receive a fee for preparing this report.

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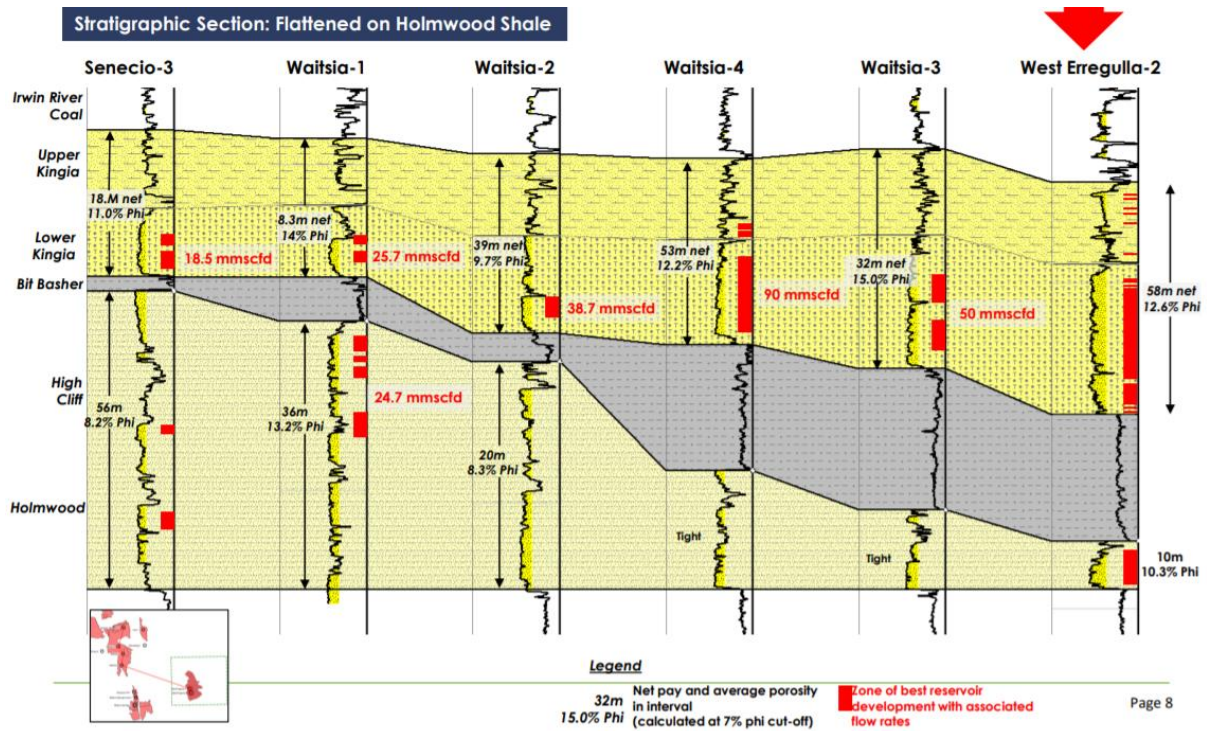
Table 1 Comparison of Waitsia and West Erregulla wells

	Senecio-3	Waitsia-1	Waitsia-2	Waitsia-3	Waitsia-4	WE-1	WE-2
Drilled (TD date)	Aug-14	Jun-15	Jul-15	Jun-17	Aug-17	Jul-90	Sep-19
Drilling time (days)	19	25	28	32	32	65	95
Days rig on well (days)	33	37	37	42	44	73	113
Measured Depth (m)	3,370	3,507	3,530	3,612	3,744	4,065	5,100
<u>ASX-reported results</u>	2-Sep-14	16-Jun-15	10-Nov-17	4-Jul-17	22-Aug-17	-	various
Wagina gross/net (m)	88/0	148/0	-	32/0	107/0	45/0	79/10
Kingia gross/net (m)	39/10	} 95/18	39/~7	52/20	42/21	-	97/58
High Cliff gross/net (m)	140/		-	-	-	-	22/10
<u>Well completion report</u>		3-Aug-18	3-Aug-18	3-Aug-18	3-Aug-18	Dec-90	
Kingia gross/net (m)	37/18	40/8	69/39	104/32	89/53	-	
High Cliff gross/net (m)	138/56	119/36	93/21	37/0	55/0	-	
Porosity Kingia/HC (%)	8/11	14/13	10/8	15/-	12/-		14/10
Permeability (mD)	>10-100+	137/12.5	>10	>10	>10		102/
<u>Flow test results</u>	9-Mar-15	28-Oct-15	10-Nov-17	23-Oct-17	22-Nov-17	Jul-90	25-Oct-19
Formation(s) tested	Kingia/HC	Kingia/HC	Kingia	Kingia	Kingia	Wagina	Kingia
Casing diameter (")	5 ½	5 ½	5 ½	7	7	-	5 ½
Prod'n tubing (")	2 7/8	2 7/8			4 ½	-	3 ½
Flow rate (mmscfd)	12.3/0.3	25.7/24.7 tubing const	38.5	49.5	89.6	0.02	69 surface const
Choke size (/64")	36/	56/56	80	80	96	DST*2	128
Flow time (hr)	5	~1	2.1	2.6	0.4		1
FWHP (psig)	1,980	1530/1330	1,315	1,929	2,395		~700

Source: K1 Capital analysis, based on company ASX announcements (AWE, Strike Energy, Warrego Energy) and well completion reports. Where ASX information differs from well completion information ASX information has been used.

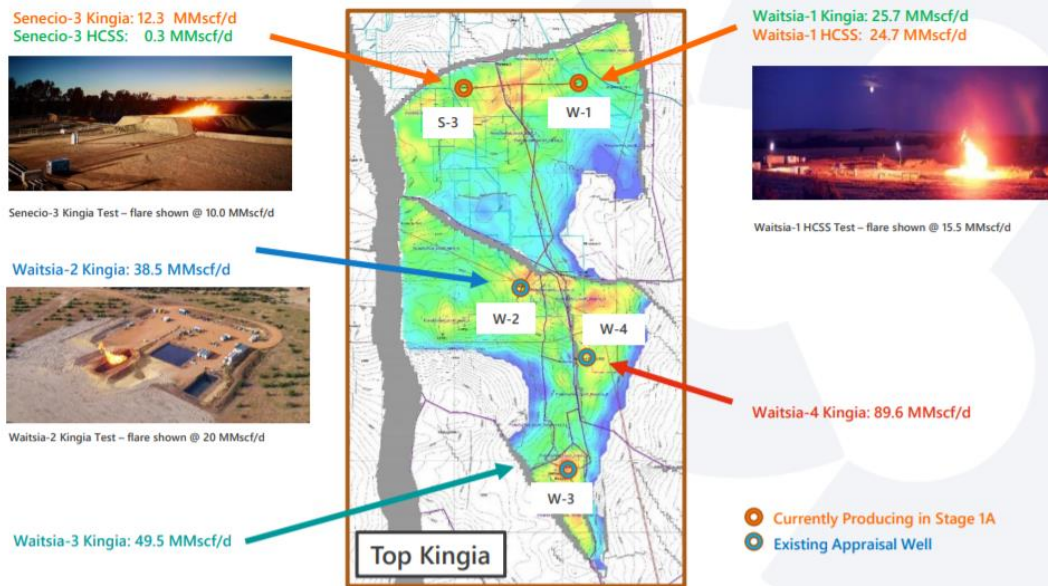
- 1) Drilled date based on date total depth achieved. Drilling time from spud to TD.
- 2) No Wagina intersected in Waitsia-2. WE-1 terminated at base of Wagina. Kingia/High Cliff not intersected.
- 3) Casing diameter and production tubing diameter from ASX releases and well completion reports.
- 4) Flow rate is average rate reported for final test period. Peak rate may be higher. HC not tested in Waitsia-2,3&4.
- 5) FWHP = flowing well head pressure.
- 6) Side-wall core analysis included in well completion reports shows a significant range in porosity and permeability.
- 7) Kingia and High Cliff gross/net results and porosity results for Senecio-3 and Waitsia 1,2,3 &4 are shown as reported to the ASX and per the Waitsia-4 Well Management Plan Interpretive Well Completion Report, 8 Aug 2018. The 8 Aug 2018 results were used by Strike Energy in its 12th September 2018 presentation to the RIU Good Oil Conference.
- 8) WE-2 completed as a potential future producing well from the Kingia formation.

Figure 1 Kingia - High Cliff Sandstones stratigraphic section



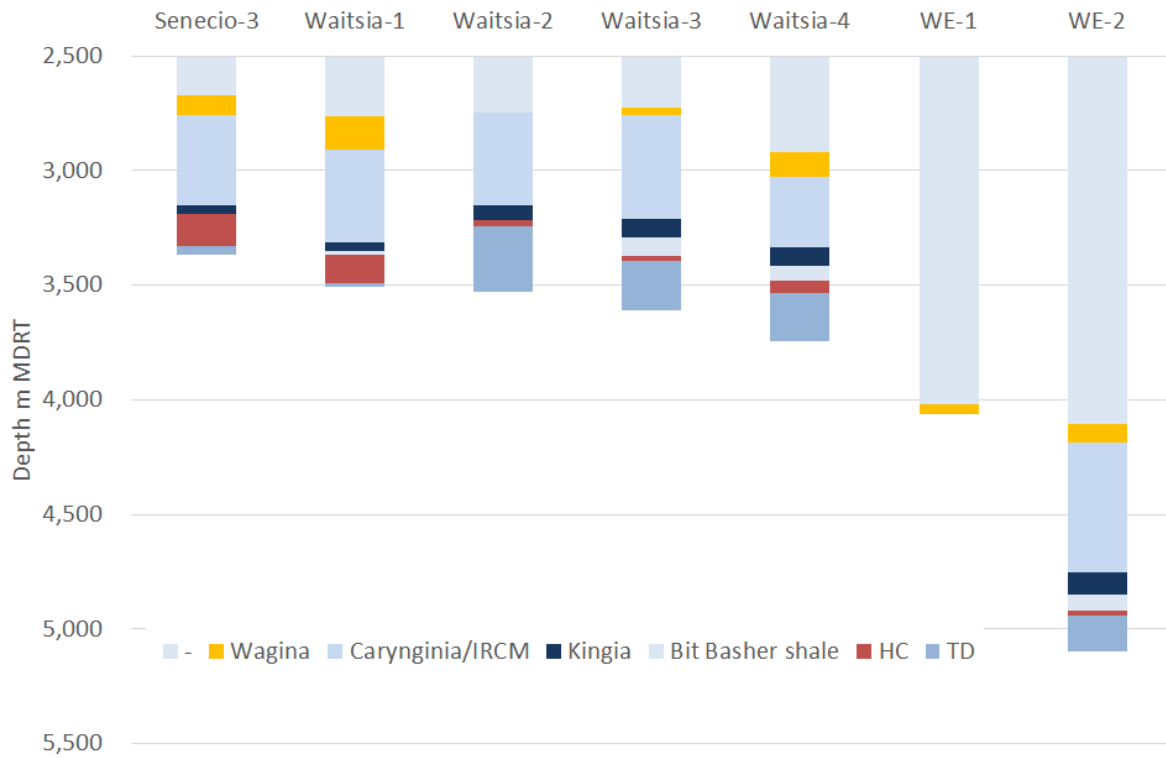
Source: Strike Energy Limited, RIU Good Oil Conference Presentation, 12th September 2019, p 8

Figure 2 Waitsia gas field test results



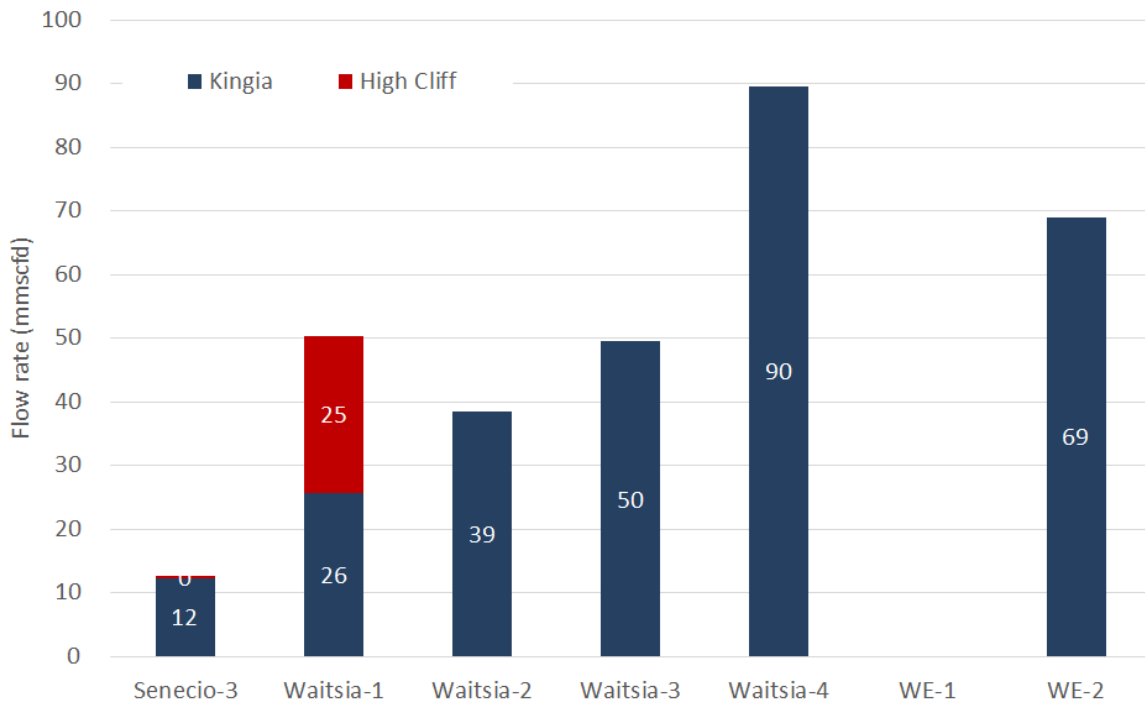
Source: AWE Limited, Presentation to the Petroleum Club of WA, 27th March 2018

Figure 3 Waitsia and West Erregulla formation depths



Source: K1 Capital analysis of company announcements

Figure 4 Waitsia and West Erregulla flow test results (maximum rates)



Source: K1 Capital analysis of company announcements

Figure 5 West Erregulla prospective resource - Strike Energy assessment (pre-drill)

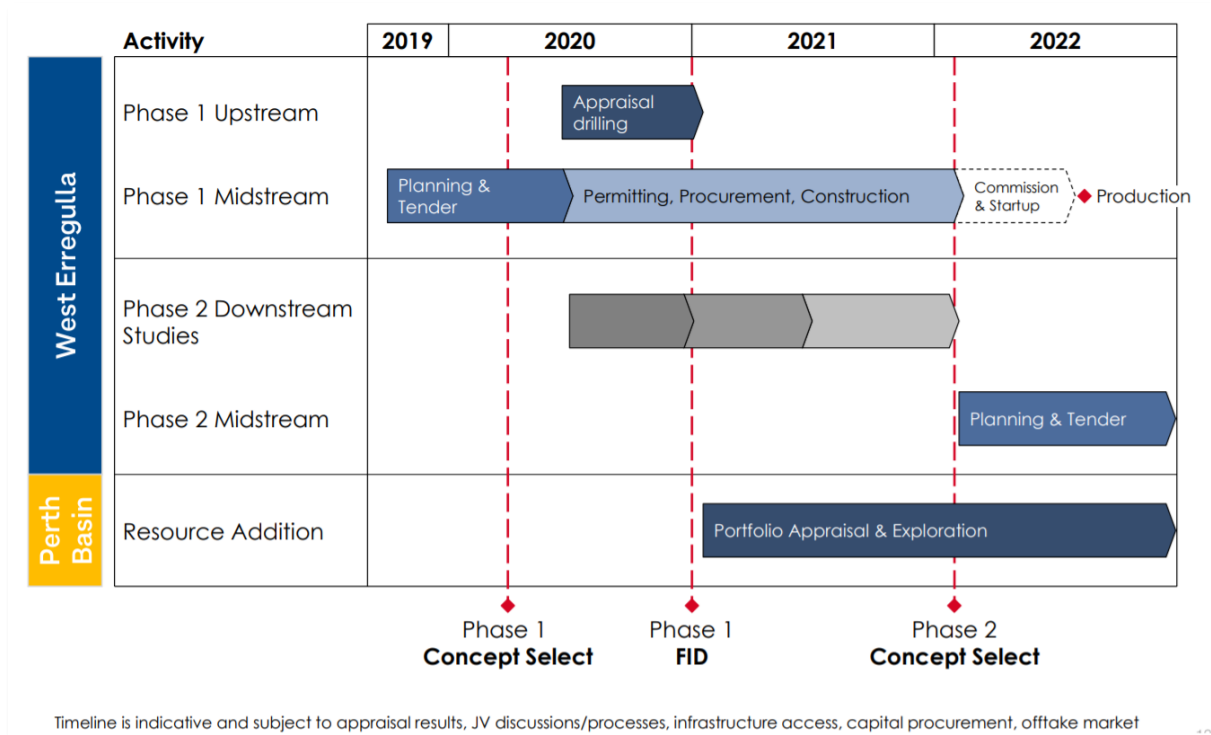
Reservoir	Gross prospective resource (Bscf)			Net attributable (Warrego 50%) (Bscf)		
	Low (P90)	Best (P50)	High (P10)	Low (P90)	Best (P50)	High (P10)
Basal Wagina	154	247	372	77	124	186
Kingia	283	454	670	142	227	335
High Cliff	324	462	627	162	231	314

Notes

- 1) These resource estimates are from Strike Energy's 23rd January 2019 ASX announcement
- 2) These resource estimates are un-risked
- 3) The estimated quantities of petroleum that may potentially be recovered by the application of a future development project(s) relate to undiscovered accumulations. 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

Source: Petrel Energy Limited, Notice of Extraordinary General Meeting, 6th February 2019, p 2 of RISC report

Figure 6 Potential project development schedule



Source: Strike Energy Limited, "Perth Basin Strategy and Operations Update", 21st October 2019, p 13

Figure 7 Base case valuation summary

NPV @ 10.0% WACC+country factor Valuation as of 30 Jun 2019	Net volume mmboe	NPV value \$/US/boe	Risk factor %	Risk value M\$A	Risk value \$/A/sh	Unrisked value \$/A/sh	WACC %	Risk value \$/A/sh
Projects (DCF model valuation)	0.0			0	0.00	0.00		
Lochend Cadium tight oil	0.0	19.20	20	0	0.00	0.00	10.0	
Exploration / Appraisal	188.7			447	0.59	1.85		
EP 469 discovered gas	6.1	-	2	-	-	-		
West Erregulla Deep - Wagina	21.1	4.80	60	87	0.11	0.19		
West Erregulla Deep - Kingia	38.7	4.80	60	159	0.21	0.35		
West Erregulla Deep - High Cliff	39.4	4.80	60	162	0.21	0.36		
EP 469 Jurassic oil	9.4	7.90	8	9	0.01	0.14		
STP-EPA-0127	-	-	-	0	0.00	0.00		
Tesorillo (Spain) conv. gas	73.9	5.80	5	31	0.04	0.81		
Uruguay conventional	-	3.05	4	-	-	-		
Other (corporate, cash, debt, etc)				31	0.04	0.04		
Corporate costs				-5	-0.01	-0.01		
Hedging & Investments				-	-	-		
Franking credits (@ 0 %)				-	-	-		
Cash				7	0.01	0.01		
Additional Equity				27	0.04	0.04		
Debt				-0	-0.00	-0.00		
Minorities / Other				2	0.00	0.00		
Equity Valuation @ base case	-			478	0.630	1.90	Previous 0.63	
Equity Valuation @ spot prices @ \$US61/bbl real Brent & 0.68 f				-	-	-	0.00	
Mkt Cap @ current share price (and undiluted share count)				222	0.365			
Total shareholder return (%)					n/a			
Number of shares (undiluted)	000,000			609.4	@ valuation date			
Number of shares (diluted)	000,000			755.5				

0.68 USD: AUD spot and 0.70 USD: AUD long term exchange rate. Current share count (as of 25th October 2019) = 708.1m shares, post 16th September 2019 capital raising. Dilution includes additional \$15-20m equity for West Erregulla appraisal (50% of seismic plus two wells at assumed \$18m each), plus G&A and Tesorillo expenditure commitments. Assumes Uruguay divested.

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1.1 Appendix 1

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