

In the absence of Project level reporting, it is difficult for Papua New Guinean investors to come to grips with how the PNG LNG Project and the State participant, Kumul Petroleum Holdings Limited (KPHL) are performing.

Using information published by Santos Limited (ASX: STO) and Oil Search Limited (PNGX: OSH), we have put together a summary of what we think has been going on since the start of production in early 2014.

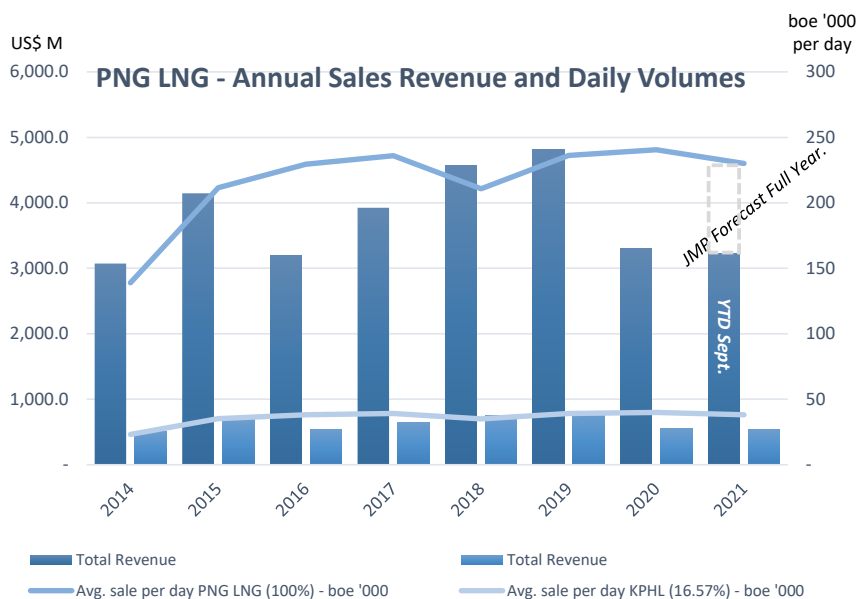
Our analysis is incomplete and relies on a number of assumptions as well as upon us filling in some gaps in the published data.

However, we are confident that we are not wildly out of the park in terms of these high-level estimates.

If we are wrong, then perhaps this is a catalyst for stakeholders with more accurate information to make public disclosures.

PNG LNG Project – Total Revenue (Estimated)

Sales Revenue	Total	2014	2015	2016	2017	2018	2019	2020	2021	YTD Sept
	US\$m	US\$m	US\$m	US\$m	US\$m	US\$m	US\$m	US\$m	US\$m	US\$m
PNG LNG Project (100%)	25,581.6	2,496.7	3,567.1	2,631.7	3,258.4	3,850.5	4,116.3	2,919.8	2,741.1	
LNG	36.5	-	-	-	-	-	-	18.8	17.8	
Domestic Gas	4,245.2	562.0	537.9	525.5	601.6	643.2	630.8	330.6	413.5	
Condensate	407.1	15.8	42.0	46.3	64.8	71.3	75.0	41.7	50.3	
Naphta	30,270.5	3,074.5	4,147.0	3,203.6	3,924.8	4,565.0	4,822.0	3,310.9	3,222.6	
Total										
Average Price achieved per boe		81.90	53.69	38.12	45.54	59.35	55.93	37.61	51.29	



HIGHLIGHTS

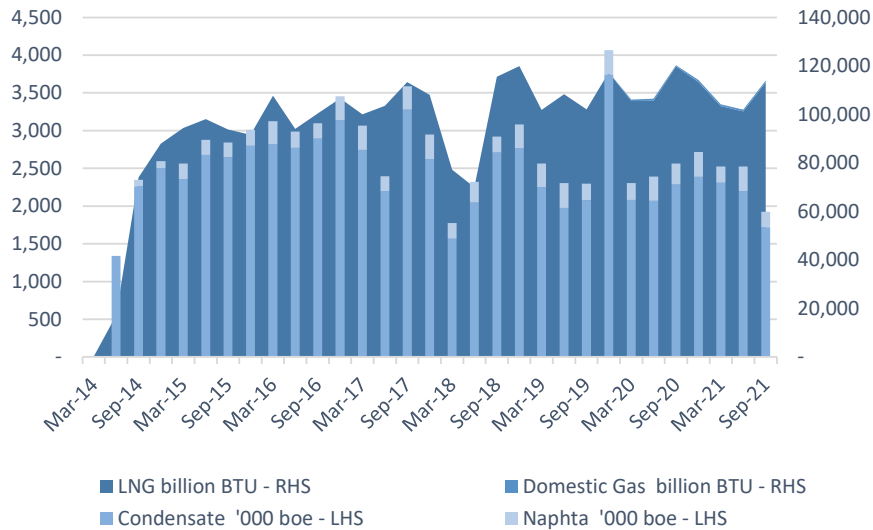
- US\$30bn+ in sales since project start.
- Average of <230k barrels of oil equivalent (boe) daily production 2021 YTD
- <US\$3.2bn+ revenue YTD 2021

We estimate that the PNG LNG Project has sold LNG, condensates, domestic gas and naphta valued at US\$30.27bn between April 2014 and September 2021.

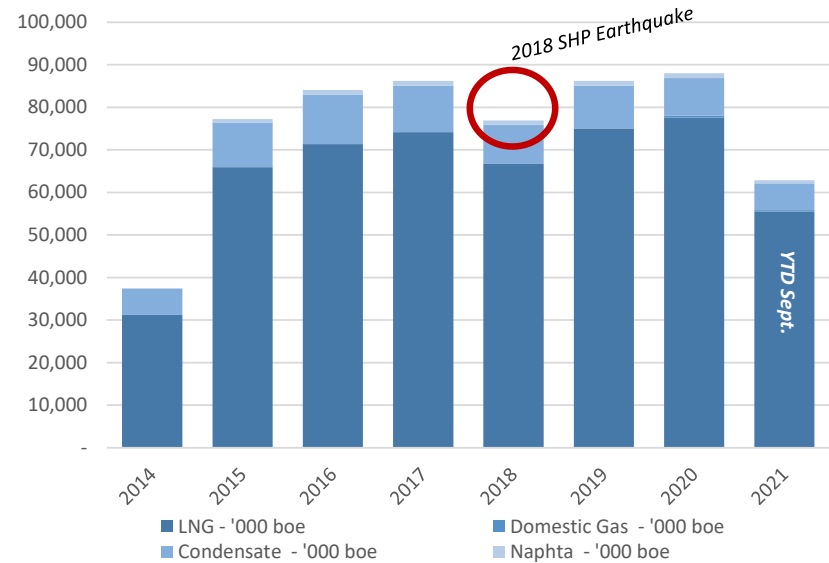
More than 80% of revenues come from the sale of Liquefied Natural Gas (LNG).

Production Volumes (Estimated)

PNG LNG (100%) - Quarterly Sales Volumes



PNG LNG (100%) Annual Sales Volumes (boe '000)



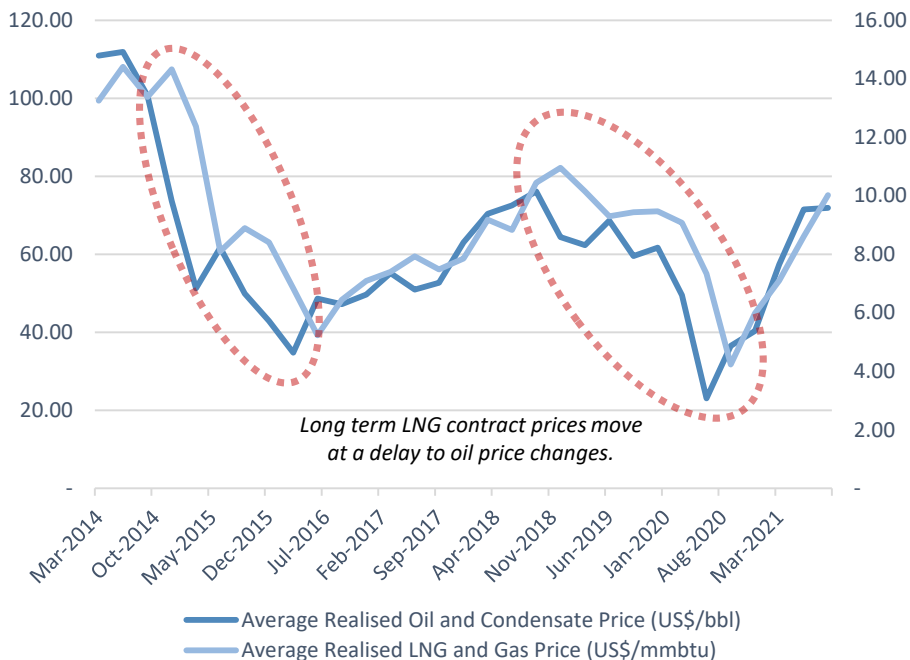
Sales - boe	Total	2014	2015	2016	2017	2018	2019	2020	2021
PNG LNG Project (100%)									
LNG - '000 boe	517,629	31,252	65,951	71,371	74,179	66,817	74,991	77,565	YTD Sept 55,502
Domestic Gas - '000 boe	842	-	-	-	-	-	-	486	356
Condensate - '000 boe	73,231	6,103	10,476	11,624	10,841	9,086	10,048	8,824	6,228
Naphta - '000 boe	7,283	183	817	1,038	1,155	1,014	1,183	1,148	745
Total	598,984	37,539	77,244	84,033	86,175	76,917	86,222	88,023	62,830
Average sales per day - '000 boe		139.03	211.63	229.60	236.10	210.73	236.23	240.50	230.15

Sales - boe	Total	2014	2015	2016	2017	2018	2019	2020	2021
KPHL (16.8%)									
LNG - '000 boe	86,962	5,250	11,080	11,990	12,462	11,225	12,599	13,031	YTD Sept 9,324
Domestic Gas - '000 boe	141	-	-	-	-	-	-	82	60
Condensate - '000 boe	12,303	1,025	1,760	1,953	1,821	1,526	1,688	1,482	1,046
Naphta - '000 boe	1,224	31	137	174	194	170	199	193	125
Total	100,629	6,306	12,977	14,118	14,477	12,922	14,485	14,788	10,555
Average sales per day - '000 boe		23.36	35.55	38.57	39.66	35.40	39.69	40.40	38.66

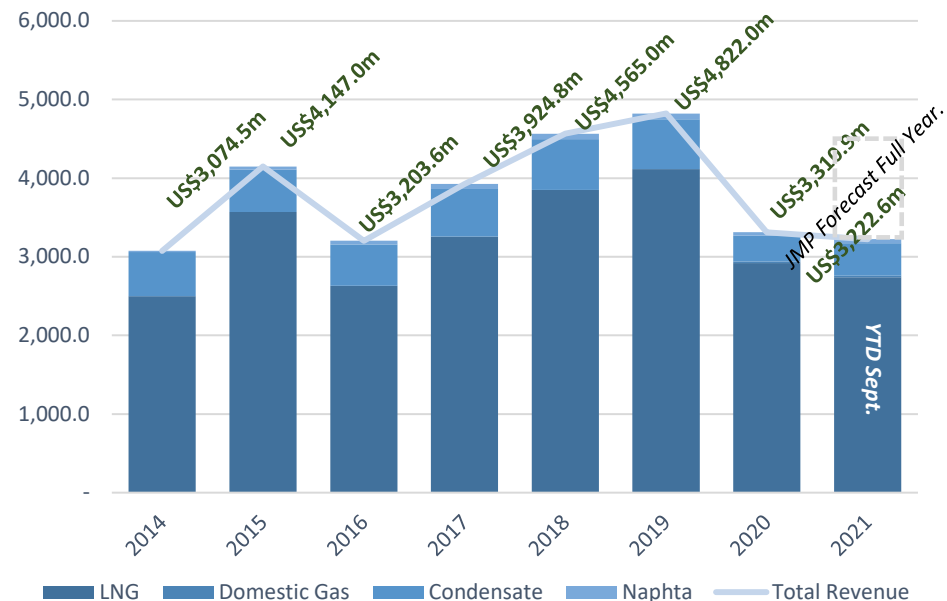
- We estimate PNG LNG has sold the equivalent of close to 600 million barrels of oil since 2014.
- Around 100m boe have been sold by KPHL.
- KPHL sells around 35-40k boe per day.

Sales and Prices (Estimated)

Avg. Condensate and Gas Prices Achieved

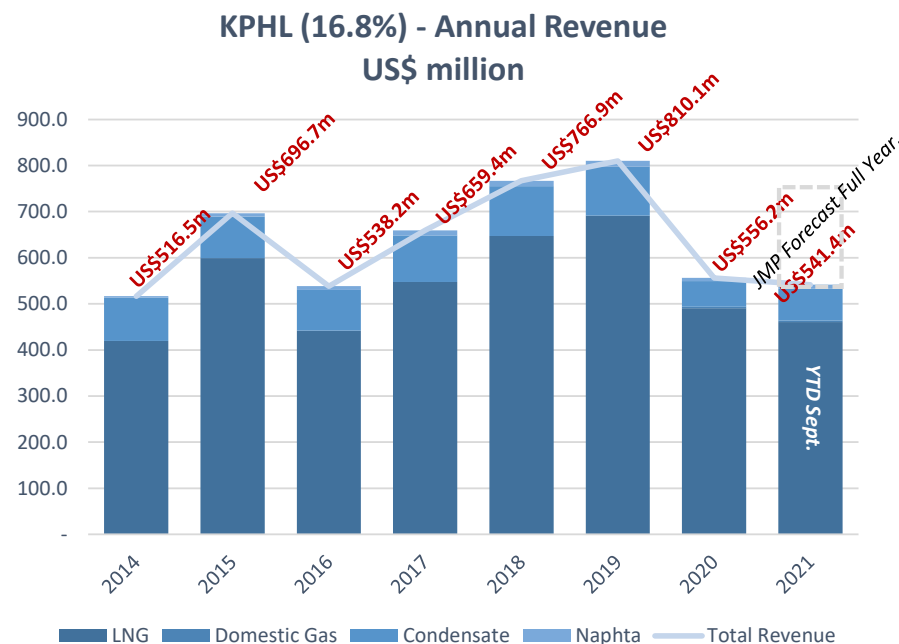
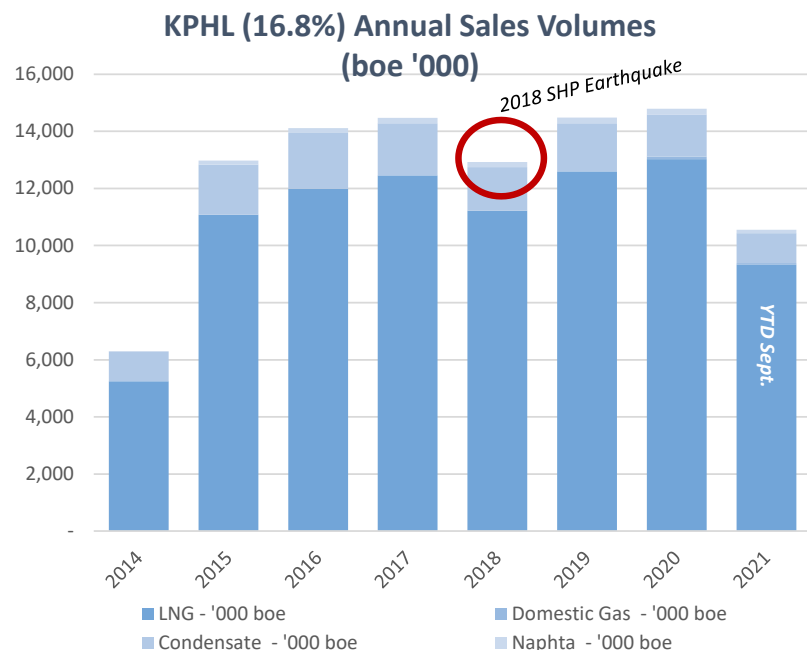


PNG LNG (100%) - Annual Revenue US\$ million



- We estimate that the highest average quarterly gas export prices achieved by PNG LNG is US\$14.41 per mmbtu. This was achieved in the June Quarter of 2014 on modest volumes.
- In the most recent quarter, September 2021, we estimate PNG LNG achieved around US\$10.00 in average gas sales prices.
- The lowest gas prices were achieved in the September quarter of 2020 – around US\$4.2/mmbtu.
- We forecast aggregate revenues for PNG LNG for the 2021 financial year to exceed US\$4.5bn. This will be an increase over 2020 of more than 35% and will be the 3rd highest sales performance since commencement of operations in 2014.

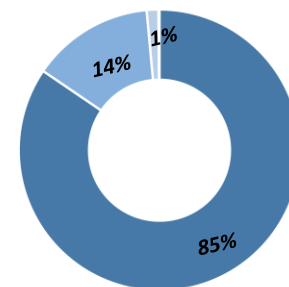
Kumul Petroleum Holdings Limited – Estimated Volumes & Revenues



- At 'steady-state' production and sales, we estimate that KPHL sells around 14m barrels of oil equivalent per annum.
- The SHP earthquake in 2018 had a considerable impact on aggregate production and sales volumes. However, high prices achieved during that year partially offset these losses.
- We estimate KPHL's highest annual revenue from the project occurred in 2019, with sales probably exceeding US\$800 million. This estimate is based on market disclosures by OSH during that year.
- During the pandemic affected 2020 financial year, revenues are estimated to have dropped to around US\$556 million. 2016 was another year significantly affected by lower prices.
- Our estimate for the aggregate revenues to KPHL from the PNG LNG Project in the current financial year is around US\$750-775 million based on the high prices currently being achieved.

Kumul Petroleum Holdings Limited – Estimated Volumes & Revenues cont'd

Sales Revenue	Total	2014	2015	2016	2017	2018	2019	2020	2021
KPHL (16.8%)	US\$M	US\$M	US\$M	US\$M	US\$M	US\$M	US\$M	US\$M	US\$M
LNG	4,297.7	419.5	599.3	442.1	547.4	646.9	691.5	490.5	460.5
Domestic Gas	6.1	-	-	-	-	-	-	3.2	3.0
Condensate	713.2	94.4	90.4	88.3	101.1	108.1	106.0	55.5	69.5
Naphta	68.4	2.7	7.0	7.8	10.9	12.0	12.6	7.0	8.4
Total	5,085.4	516.5	696.7	538.2	659.4	766.9	810.1	556.2	541.4
<i>Average Price achieved per boe</i>		<i>81.90</i>	<i>53.69</i>	<i>38.12</i>	<i>45.54</i>	<i>59.35</i>	<i>55.93</i>	<i>37.61</i>	<i>51.29</i>



Average Prices	Total	2014	2015	2016	2017	2018	2019	2020	2021
LNG - Avg. price (US\$/mmbtu)		13.95	9.44	6.44	7.67	10.06	9.58	6.57	8.62
Condensates - Avg. price (US\$/boe)		92.08	51.35	45.21	55.49	70.79	62.77	37.46	66.40

■ LNG ■ Domestic Gas ■ Condensate ■ Naphta

- We have included the share formerly attributed to Petromin PNG Holdings Limited. As a result, we have calculated KPHL's share at 16.8% since the commencement of operations.
- We estimate that cumulative revenues from the PNG LNG Project to KPHL since the commencement of operations in 2014 are in the order of US\$5.1bn.
- This is an estimate of revenue only. We are not in a position to comment on the overall costs of operations associated with the Project or the wider operations of KPHL.

Current PNG LNG Project Participants

Participant	Interest
ExxonMobil	33.2%
Oil Search Limited	29.0%
Kumul Petroleum Holdings Limited	16.8%
Santos Limited	13.5%
JX Nippon Oil & Gas Exploration	4.7%
MRDC	2.8%
Total	100.0%

- Given the current high international crude oil prices and the time lag between movements in oil prices and the pricing of LNG under long-term contracts, we expect continued benign trading conditions for PNG LNG in the coming months.
- This will result in a strong performance for the 2021 financial year as a whole.

Some words about our Methods

- The PNG LNG Project is structured as an Unincorporated Joint Venture (*UJV*) with joint marketing and financing arrangements.
- Each joint venture partner receives a share of net cash flows from their joint sales, net of certain agreed deductions – operating costs, interest charges and principal repayments on joint venture project finance borrowings that funded the construction of the Project.
- Because the Project is unitized, meaningful extrapolations (with caution and qualifications) can be made about the project from public disclosures made by individual joint venture partners.
- Oil Search Limited and Santos Limited make regular public disclosures to the ASX (OSH and STO) and PNGX (OSH).
- We have relied on these disclosures to develop our estimates of the state of play on the project as a whole.

- For the purposes of estimating the share of revenues and production that belongs to KPHL, we have included the share formerly attributed to Petromin PNG Holdings Limited. As a result, we have calculated KPHL's share at 16.8% since the commencement of operations.
- As at 30 September 2021, the joint venture participants in the project were publicly disclosed as being the following:

Participant	Interest
ExxonMobil	33.2%
Oil Search Limited	29.0%
Kumul Petroleum Holdings Limited	16.8%
Santos Limited	13.5%
JX Nippon Oil & Gas Exploration	4.7%
MRDC	2.8%
Total	100.0%

- We have relied on this information and performed our analysis based on it being correct.

Some words about our Limitations and Disclaimers

- We have prepared this analysis based on publicly available information and have not verified the information with either the PNG LNG Project or any of the co-venturers therein.
- The analysis has been prepared as part of general investor awareness activities as well as our commitment to participation in general economic and market discourse in Papua New Guinea.
- Nothing within this document shall be taken to constitute a recommendation to invest or not invest in any security or asset whatsoever.
- You must always seek direct and pertinent advice from licensed and appropriately qualified and experienced professionals before making investment decisions.
- It is important to note that, as we have relied on limited information, we may not be aware of significant factors, variables, data or events that serve to potentially alter our analysis and estimates.
- Our estimates are not meant to be exhaustive evaluations of all the facts and circumstances in relation to the PNG LNG Project.
- We simply wish to advance the cause of financial and economic literacy and discussions in the PNG market place and believe that information and estimates pertaining to the performance of the PNG LNG Project is an important factor in this regard.
- Should you have any questions or comments, please do not hesitate in contacting us. Our contact details have been included on the next page.

Thank You!

Contact us on +675 313 7996 or info@jmpmarkets.com to access PNG financial markets



Level 1,
Harbourside West, Stanley Esplanade
PO Box 2064 Port Moresby National
Capital District, Papua New Guinea

www.jmpmarkets.com

Contact JMP Securities Limited

Lars Mortensen
Head of Research

JMP Knowledge Lab
Ph: +675 7200 2233

lars.mortensen@jmpmarkets.com

Chris Hagan
Head of Fixed Interest & Superannuation

JMP Securities Limited
Mobile (PNG): +675 72319913
Mobile (Int): +61 414529814

chris.hagan@jmpmarkets.com

Nathan Chang
Head of Equity Capital Markets

JMP Securities Limited
Ph: +675 7167 3223

nathan.chang@jmpmarkets.com