

Time Value of Money

Money

	Year 1	Year 2	Year 3	Year 4	Year 5
US\$ in wallet					
US\$ in bank					
Inflation					
Interest Rate					
Cumulative Interest Rate					

Cost of printer ink

	Year 1	Year 2	Year 3	Year 4	Year 5
US\$ flat					
US\$ inflation					
Cumulative inflation					

Amount of printer ink

	Year 1	Year 2	Year 3	Year 4	Year 5
US\$ no inflation or interest					
US after inflation					
US\$ after inflation with interest					

	Year 1	Year 2	Year 3	Year 4	Year 5
Discount Rate					

Real versus Nominal

Costs	At Dec 31	2018	2019	2020	2021	2022
US\$ Nominal		1	1	1.00	1.00	1.00
Inflation Rate		0%	0%	0%	0%	0%
Multiplier			1	1.00	1.00	1.00

Money available

100

Chocolate Bars

Money Invested

Chocolate Bars	100.0	0.0	0.0	0.0	0.0
	100.0				

US\$ Real (2018)

Money Available

Cost of Choc Bar

Year 6 Year 7 Year 8 Year 9 Year 10

Year 6 Year 7 Year 8 Year 9 Year 10

Year 6 Year 7 Year 8 Year 9 Year 10 2029

Year 6 Year 7 Year 8

2023 2024 2025 2026 2027 2028
1.00 1.00 1.00 1.00 1.00 1.00

0% 0% 0% 0% 0% 0%
1.00 1.00 1.00 1.00 1.00 1.00

0.0 0.0 0.0 0.0 0.0 0.0

Real and Nominal

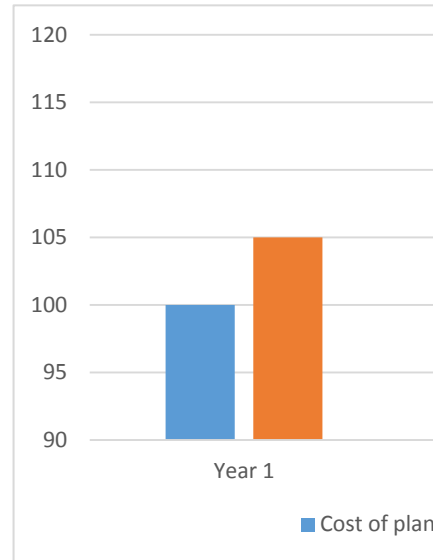
	Year 1	Year 2	Year 3	Year 4	Year 5
Real					
Nominal					
Inflation					
Inflation Factor					
Capex					
US\$2023					
Nominal					

Oil Price

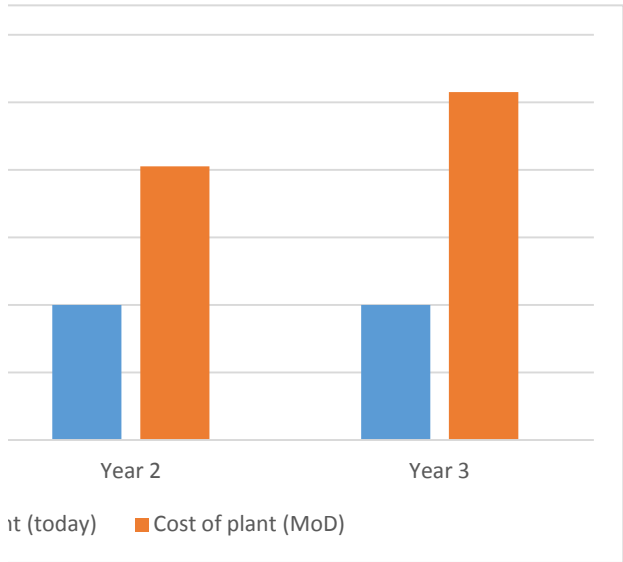
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Real							
Nominal							
Inflation							
Inflation Factor							

Cost of plant (today)
Cost of plant (MoD)

Year 8 Year 9 Year 10



Year 1	Year 2	Year 3	Total
100	100	100	300
105	110	116	331



Example Discounted Cashflow

Example 1

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Cashflow	-10	-10	-10	20	20	20	20
Discount Factor							
Discounted Cashflow							
NPV (Net Present Value)							

Discount Rate 0%

Excel Calculation

IRR

Example 2

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Capital Cost							
Revenue							
Operating Cost							
Net Cashflow							
Discount Factor							
Discounted Cashflow							
NPV							

Discount Rate

IRR

Excel Calculation

Year 8 Year 9 Year 10
20 20 20

Year 8 Year 9 Year 10 Year 11 Year 12 Year 13 Year 14 Year 15 Year 16

Year 17 Year 18 Year 19 Year 20

WACC Calculation

Risk Free Rate 0.00%

Corporate Interest Rate 0.00%

Equity market return 0.00%

Company Beta 0

Corporate Tax Rate 0%

	Debt	Equity
Debt:Equity Split	100%	0%

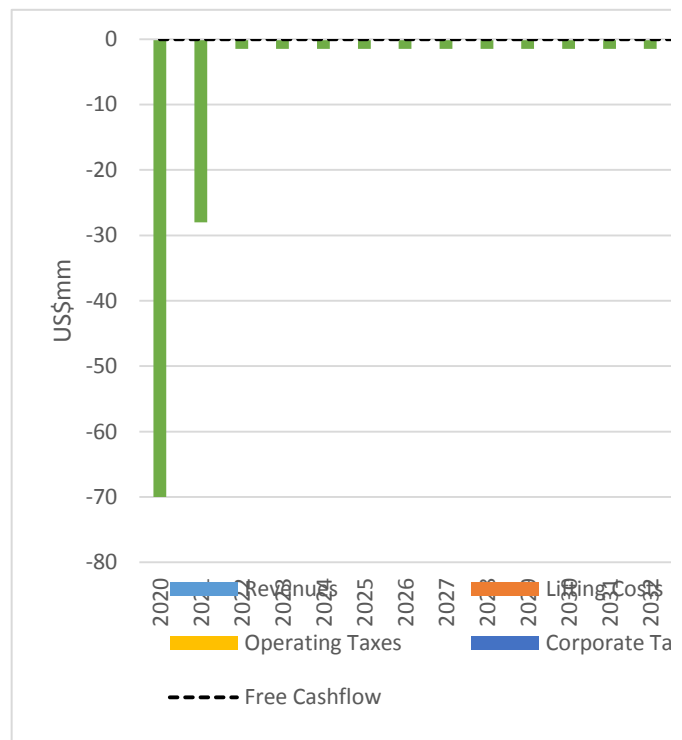
Cost of Debt 0.00%

Cost of Equity 0.00%

WACC 0.00%

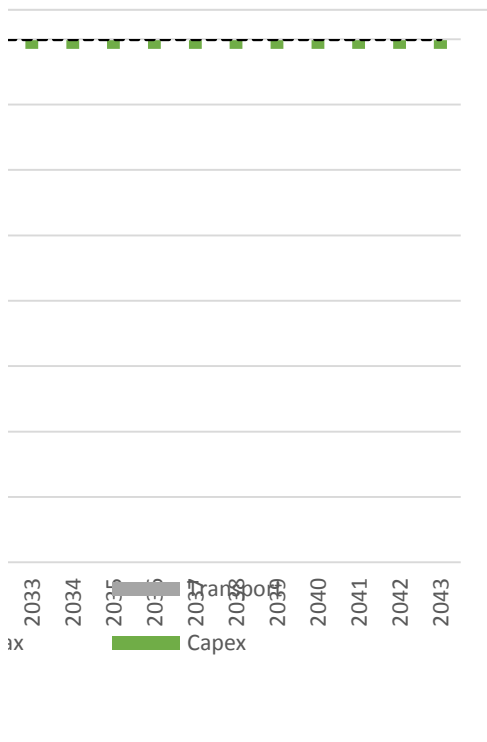
Terminal Value	
Implied FCF	#DIV/0!
Implied DCF	#DIV/0!
NPV	#DIV/0!
Plus Cash	0
Less Debt	0
Total NPV	#DIV/0!
IRR	#####
<i>EBITDA Multiple</i>	20

	2020	2021	2022	2023	2024	2025
Revenues	0	0	0	0	0	0
Lifting Costs	0	0	0	0	0	0
Transport	0	0	0	0	0	0
Operating Taxes	0	0	0	0	0	0
Corporate Tax	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Capex	-70	-28	-2	-2	-2	-2
Free Cashflow	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!



					0
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0

2026	2027	2028	2029	2030	2031	2032	2033	2034
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
-2	-2	-2	-2	-2	-2	-2	-2	-2
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

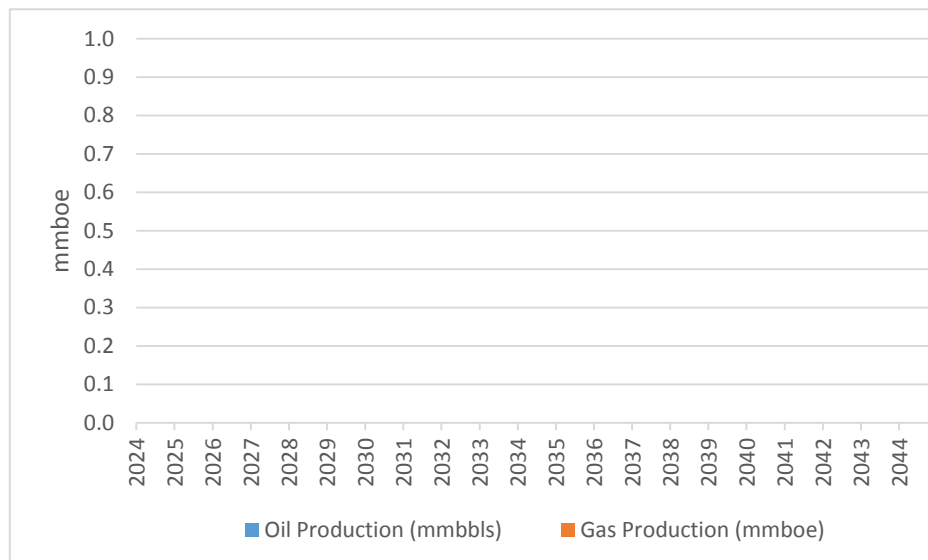


Production

	Oil		Gas	
	mmbbls	kbpd	Bcf	mmcf/d
Resources	0		0	
Recovery Factor	0%		0%	
Reserves	0		0	
Start date	5 years after first capex		Peak as % Reserves	5 years after first capex
Peak Production (mmbbls)	0	0	0%	0
Time to Peak (yrs)	0			1
Length of Peak (yrs)	0			1
Decline rate (%) Yrs 2,3,4,5+	0%			0%

	2024	2025	2026	2027	2028	2029
Oil production	0.00	0.00	0.00	0.00	0.00	0.00
Total oil produced to 2040	0.0					
Barrels per day		0	0	0	0	0
Gas Production	0.00	0.00	0.00	0.00	0.00	0.00
Total gas produced to 2040	0.0					

	2024	2025	2026	2027	2028	2029
Oil Production (mmbbls)	0.0	0.0	0.0	0.0	0.0	0.0
Gas Production (mmboe)	0.0	0.0	0.0	0.0	0.0	0.0
Total (mmboe)	0.0	0.0	0.0	0.0	0.0	0.0



Production Scenarios

Total Produced

Oil Production Scenarios

1	0.00
2	0.00
3	0.00
4	0.00
5	0.00

Gas Production Scenarios

1	0.00
2	0.00
3	0.00
4	0.00
5	0.00

Total

0

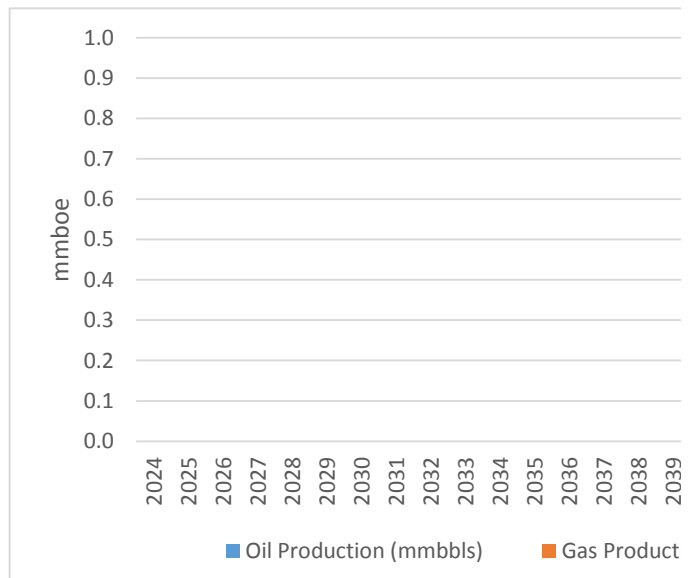
Peak as %
Reserves

0%

0% 0%

2030	2031	2032	2033	2034	2035	2036	2037	2038
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0	0	0	0	0	0	0	0	0
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2030	2031	2032	2033	2034	2035	2036	2037	2038
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



Revenue Calculation

<i>Export %</i>	<i>Oil</i>	<i>0%</i>
	<i>Gas</i>	<i>0%</i>

	2024	2025	2026	2027	2028	2029
Oil Production	0.0	0.0	0.0	0.0	0.0	0.0
Domestic Sales	0.0	0.0	0.0	0.0	0.0	0.0
Export Sales	0.0	0.0	0.0	0.0	0.0	0.0
<i>Domestic Oil Price</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>Export Oil Price</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
Domestic Revenue	0	0	0	0	0	0
Export Revenue	0	0	0	0	0	0
Total Oil Revenue	0	0	0	0	0	0
Gas Production	0.0	0.0	0.0	0.0	0.0	0.0
<i>Domestic Gas Price</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>
<i>Export Gas Price</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>
Domestic Sales	0	0	0	0	0	0
Export Sales	0	0	0	0	0	0
Domestic Revenue	0	0	0	0	0	0
Export Revenue	0	0	0	0	0	0
Total Gas Revenue	0	0	0	0	0	0
Total Revenues	0	0	0	0	0	0
Oil Production Scenarios						
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
Gas Production Scenarios						
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
Export Oil Price	#DIV/0!					
Base Case	0.0	0.0	0.0	0.0	0.0	0.0
Scenario 2	0.0	0.0	0.0	0.0	0.0	0.0
Scenario 3	0.0	0.0	0.0	0.0	0.0	0.0
Scenario 4	0.0	0.0	0.0	0.0	0.0	0.0
Scenario 5	0.0	0.0	0.0	0.0	0.0	0.0

Domestic Oil Price

Base Case	0.0	0.0	0.0	0.0	0.0	0.0
Scenario 2	0.0	0.0	0.0	0.0	0.0	0.0
Scenario 3	0.0	0.0	0.0	0.0	0.0	0.0
Scenario 4	0.0	0.0	0.0	0.0	0.0	0.0
Scenario 5	0.0	0.0	0.0	0.0	0.0	0.0

Domestic Gas Price

Base Case	0.0	0.0	0.0	0.0	0.0	0.0
Scenario 2	0.0	0.0	0.0	0.0	0.0	0.0
Scenario 3	0.0	0.0	0.0	0.0	0.0	0.0
Scenario 4	0.0	0.0	0.0	0.0	0.0	0.0
Scenario 5	0.0	0.0	0.0	0.0	0.0	0.0

Export Gas Price

Base Case	0.0	0.0	0.0	0.0	0.0	0.0
Scenario 2	0.0	0.0	0.0	0.0	0.0	0.0
Scenario 3	0.0	0.0	0.0	0.0	0.0	0.0
Scenario 4	0.0	0.0	0.0	0.0	0.0	0.0
Scenario 5	0.0	0.0	0.0	0.0	0.0	0.0

Slope 10%

0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

2047

0.0

0.0

0.0

0

0

0

0

0

0.0

0.0

0.0

0

0

0

0

0

0

0.0

0.0 15%

0.0 30%

0.0 -15%

0.0 -30%

0.0

0.0 15%

0.0 30%

0.0 -15%

0.0 -30%

0.0

0.0

0.0

0.0

0.0

0.0
0.0
0.0
0.0
0.0

0.0
0.0
0.0
0.0
0.0

0.0
0.0
0.0
0.0
0.0

Capital Expenditure

	Total mmboe	Oil mmbbls	Gas bcf	Bcf per well	
Reserves	0	0	0	8	0.0
Wells	0				
Capex per well	0.0				
Capex per bbl	#DIV/0!		#DIV/0!		
Total capex	0				
% up to first prod	75%	0			
% first oil to peak	0%	0			
Maintenance capex	25%	0			

	First Capex		First gas			
	2024	2025	2026	2027	2028	2029
US\$mm	70	28	1.5	1.5	1.5	1.5
Before first oil	98					
Maintenance	33					
Total	131					

Sensitivities

2	81	32	2	2	2	2
3	91	36	2	2	2	2
4	60	24	1	1	1	1
5	49	20	1	1	1	1
15%						
30%						
-15%						
-30%						

Field Comparisons

	Cost /bbl	Capex	Reserves	Peak Prod	Peak Prod
	US\$/bbl	US\$mm	mmbbls	kbpd	mmbbls
Kashagan (Kazakhstan)	10.46	136000	13000	1500	547.5
ACG (Azerbaijan)	4.00	20000	5000	620	226.3
Thunderhorse (Gulf of Mexico)	5.00	5000	1000	250	91.25
Novy Port (Russia onshore)	3.25	4500	1385	161	58.64
Ghawar (Saudi)	3.50	248500	71000	5000	1825
Lula (Brazil deep water)	9.04	75000	8300	500	182.5

US shale	\$10mm	per well
Ultimate recovery per well	8.0	bcf per well

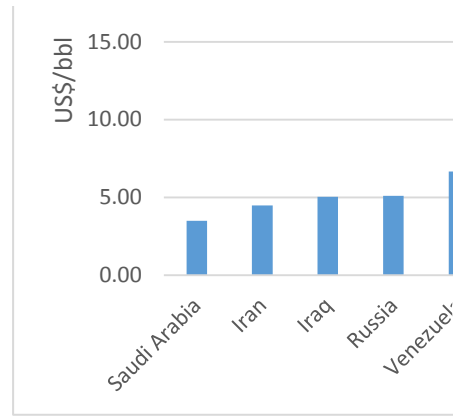
Global Comparisons

	Capex US\$/bbl
Saudi Arabia	3.50
Iran	4.48
Iraq	5.03

25.00

20.00

Russia	5.10
Venezuela	6.66
US shale	7.56
Indonesia	7.65
US conv	7.70
Canada	9.69
Nigeria	13.10
Norway	13.76
Brazil	16.09
UK	22.67

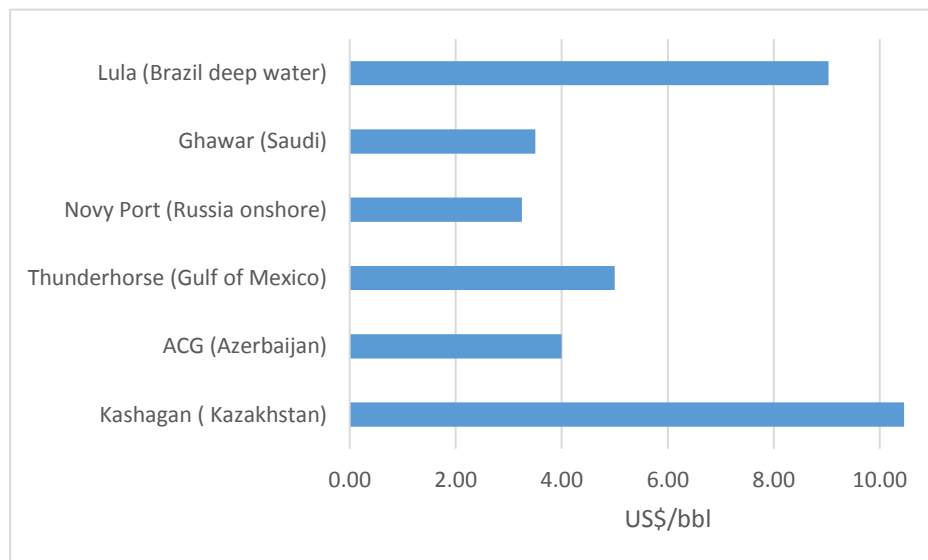


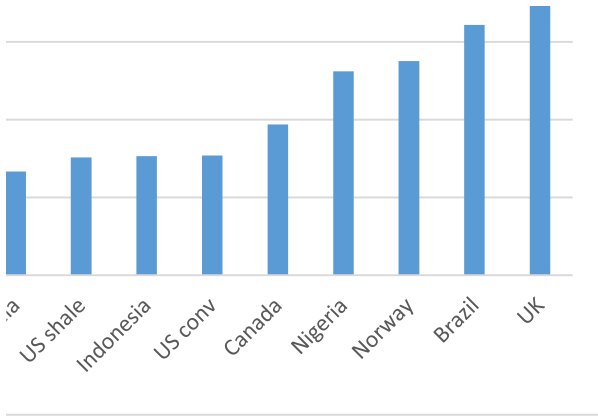
2030	2031	2032	2033	2034	2035	2036	2037	2038
1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5

2	2	2	2	2	2	2	2	2
2	2	2	2	2	2	2	2	2
1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1

Capex/
peak bbl
US\$/bbl

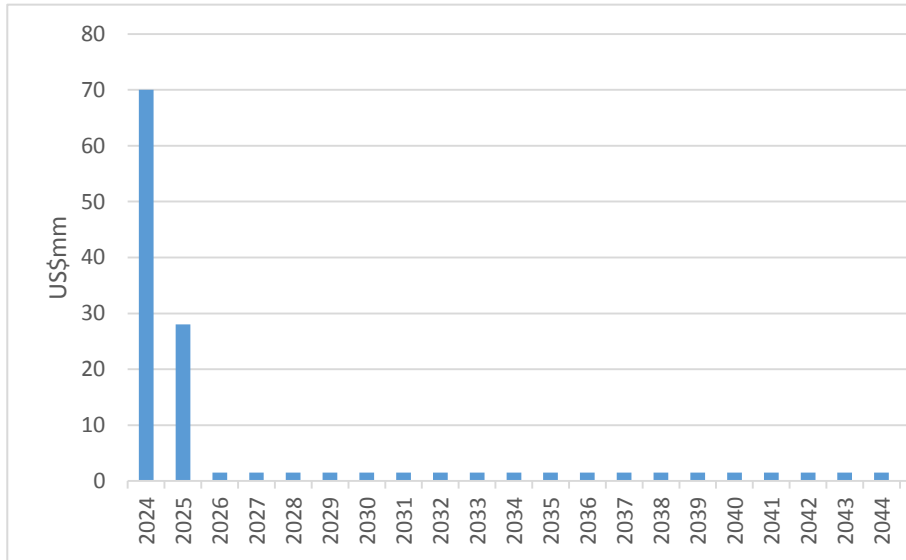
248
88
55
77
136
411





2039	2040	2041	2042	2043	2044	2045	2046	2047
1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5

2	2	2	2	2	2	2	2	2
2	2	2	2	2	2	2	2	2
1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1





Operating Costs

Lifting Costs	0.00 US\$/boe	real					
Total for model	0 US\$mm						
Variable	0.00 US\$/bbl		80%				
Fixed	0 US\$mm		20%				
Years production	23						
	2024	2025	2026	2027	2028	2029	2030
US\$mm	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0						

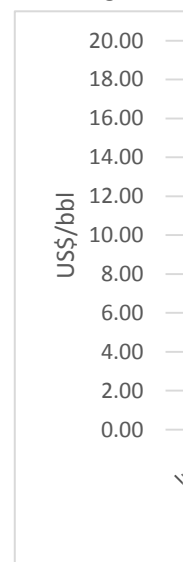
Base Case and Sensitivities

1	0.00
2	15%
3	30%
4	-15%
5	-30%

Global Comparisons

	Lifting US\$/bbl		Transport US\$/bbl
Iran	1.94	Saudi Arabi	2.49
Iraq	2.16	Iran	2.67
Russia	2.98	Iraq	2.47
Saudi Arabia	3.00	Russia	2.69
Norway	4.24	Indonesia	3.63
US conv	5.15	US conv	3.11
US shale	5.85	Norway	3.12
Indonesia	6.87	US shale	3.52
Venezuela	7.94	Canada	2.92
Nigeria	8.81	Venezuela	2.54
Brazil	9.45	Nigeria	2.97
Canada	11.56	Brazil	2.80
UK	17.36	UK	4.30

Lifting Costs



Company examples

Rosneft	3.10
Lukoil	4.26
BP	6.90
Chesapeake	2.92

Transport Costs

Oil	0.00 US\$/bbl
Gas	0.00 US\$/mcf

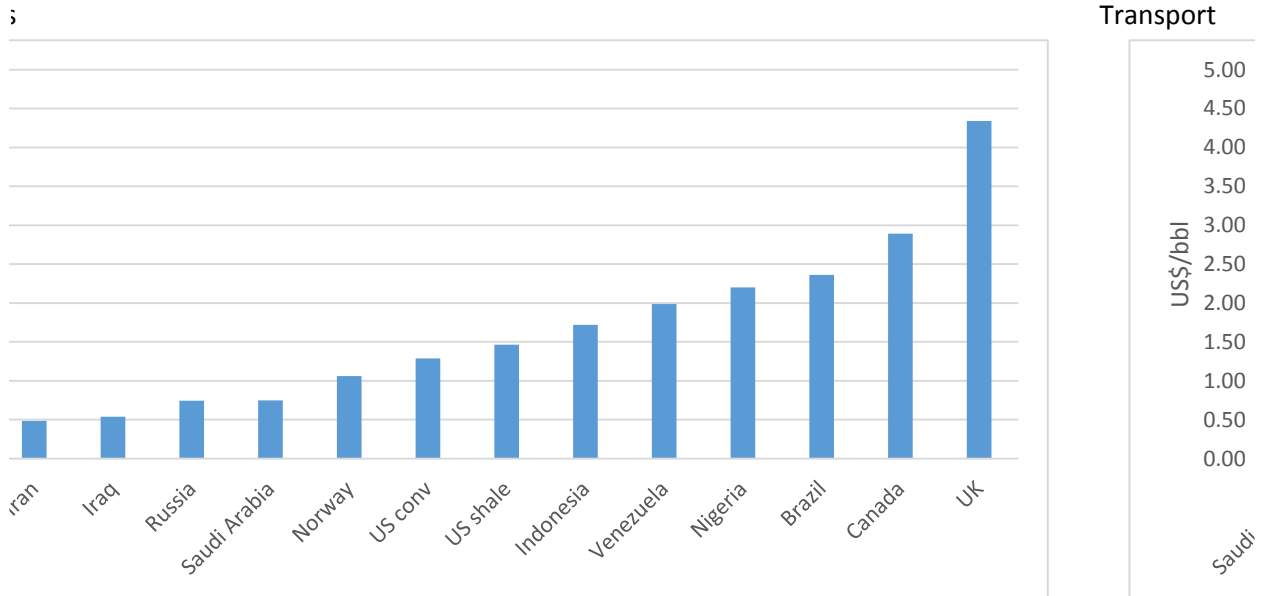
2024 2025 2026 2027 2028 2029 2030

Oil (US\$mm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gas (US\$mm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total (US\$mm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Base Case and Sensitivities

1	0.00
2	15%
3	30%
4	-15%
5	-30%

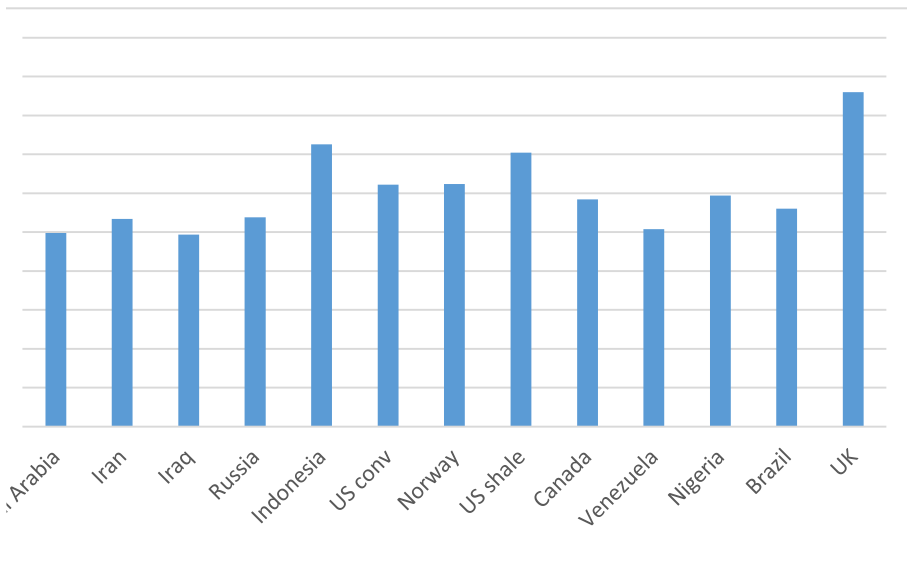
2031 2032 2033 2034 2035 2036 2037 2038
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0



2031 2032 2033 2034 2035 2036 2037 2038

0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

2039 0.0 2040 0.0 2041 0.0 2042 0.0 2043 0.0 2044 0.0 2045 0.0 2046 0.0



2039 2040 2041 2042 2043 2044 2045 2046

0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

2047

0.0

2047

0.0
0.0
0.0

Operating Taxes

Oil Tax

Export Tax Sliding of export barrels
 Royalty 0.0% of oil revenues
 Other taxes 0.0% of total revenues

Export Oil Price 0 0 0 0 0 0

	2024	2025	2026	2027	2028	2029
Export Tax	0.0	0.0	0.0	0.0	0.0	0.0
Royalty	0.0	0.0	0.0	0.0	0.0	0.0
Other	0.0	0.0	0.0	0.0	0.0	0.0
Total	0	0	0	0	0	0

Export Tax

Cut-off point 0 US\$/bbl
 Tax 0% above cut-off point

Export Tax (\$/bbl) 0 0 0 0 0 0

Gas Tax

Export Tax 0% export revenues
 Royalty 0 US\$/mcf

	2024	2025	2026	2027	2028	2029
Export Tax	0	0	0	0	0	0
Royalty	0	0.0	0.0	0.0	0.0	0.0
Total	0	0.0	0.0	0.0	0.0	0.0

Total Operating Taxes 0 0.0 0.0 0.0 0.0 0.0

Total US\$/boe #DIV/0! #DIV/0! #DIV/0! #DIV/0! #DIV/0!

Gross Taxes

US\$/bbl

Saudi Arabia	0
Iran	0
Iraq	0.91
Russia	8.44
Indonesia	1.55
US conv	5.03
Norway	0.19
US shale	6.42
Canada	2.48
Venezuela	10.48
Nigeria	4.11

Brazil
UK

6.66
0

Depreciation

Straight Line

Total Capex	0
Years of Production	0
Annual Depreciation (US\$mm)	#DIV/0!

	2024	2025	2026	2027	2028	2029
Depreciation	0	0.0	0.0	0.0	0.0	0.0
<i>Production</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
Total	0					

Unit of Production

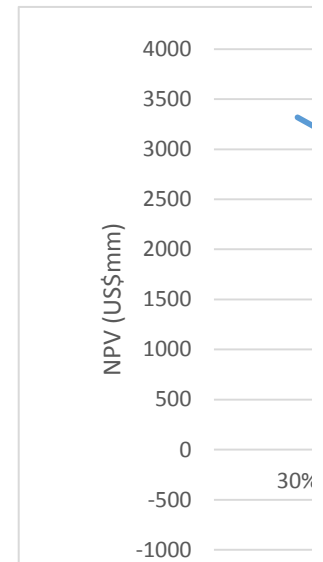
Total Reserves	0
Total Produced	0
Total Capex	0
Depreciation per barrel	#DIV/0!

	2024	2025	2026	2027	2028	2029
Depreciation	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Total	#DIV/0!					

Sensitivities

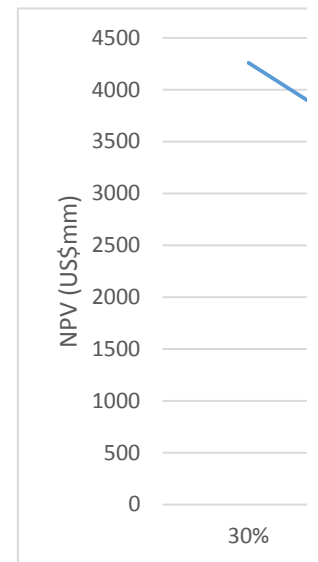
Oil Price

	NPV
30%	3318
15%	2392
0%	1465
-15%	539
-30%	-388



Production

	NPV
30%	4257
15%	3203
0%	2149
-15%	1094
-30%	40



Capex

	NPV
30%	1012
15%	1580
0%	2149
-15%	2717
-30%	3285

Opex

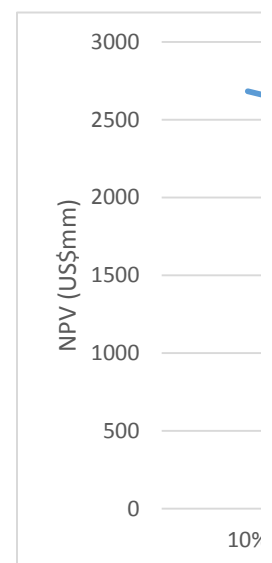
	NPV
30%	1735
15%	1942
0%	2149
-15%	2356
-30%	2563

Corporate Tax Rate

	NPV
10%	2682
15%	2415
20%	2149
25%	1882
30%	1615

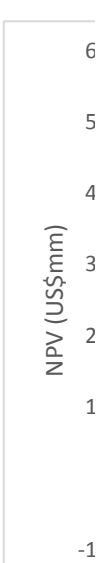
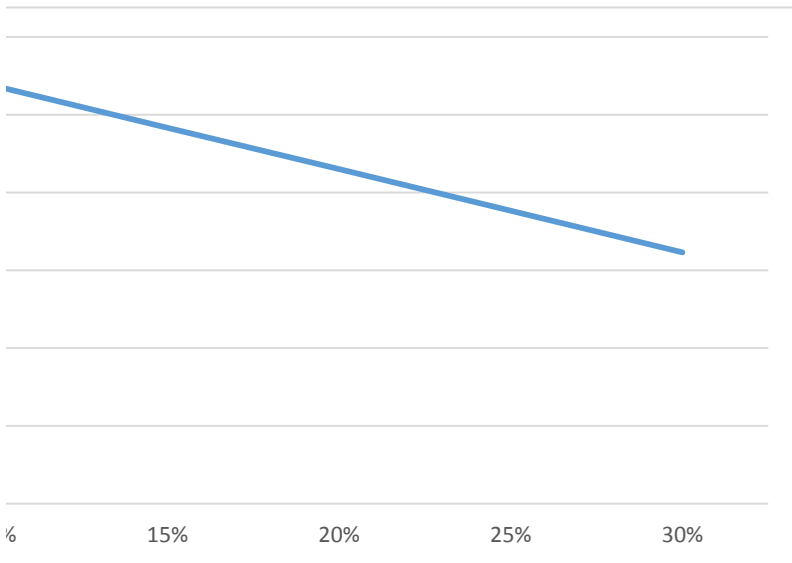
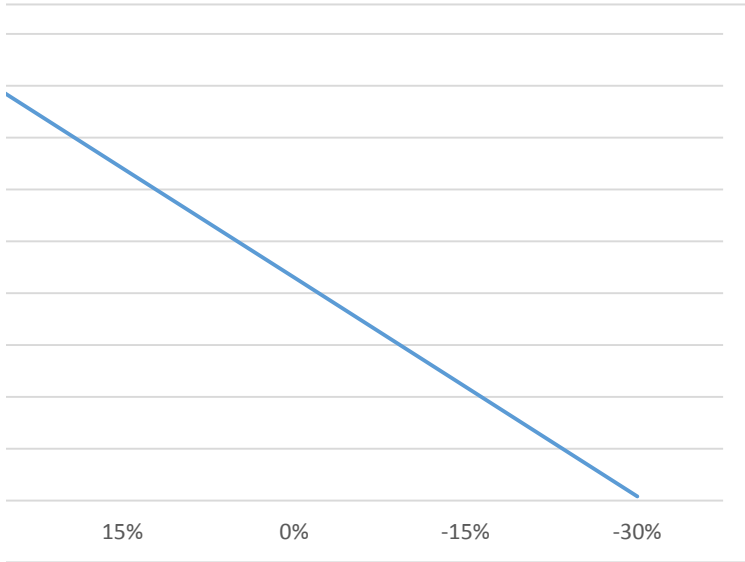
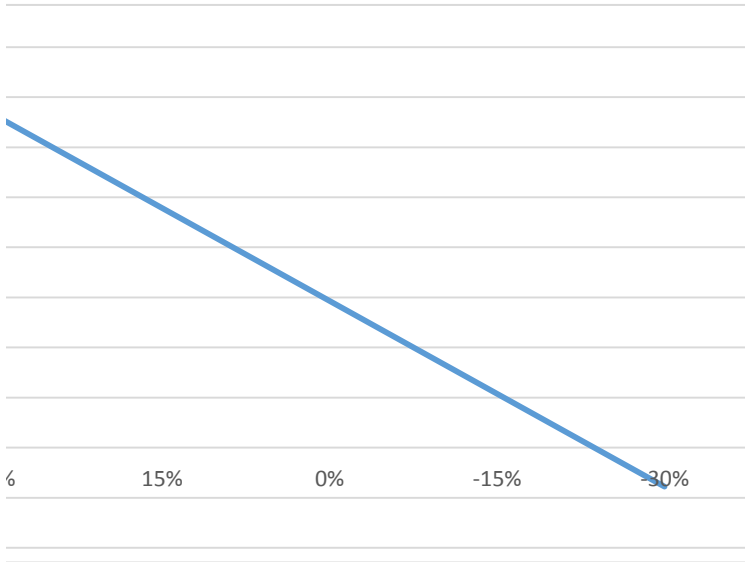
Discount Rate

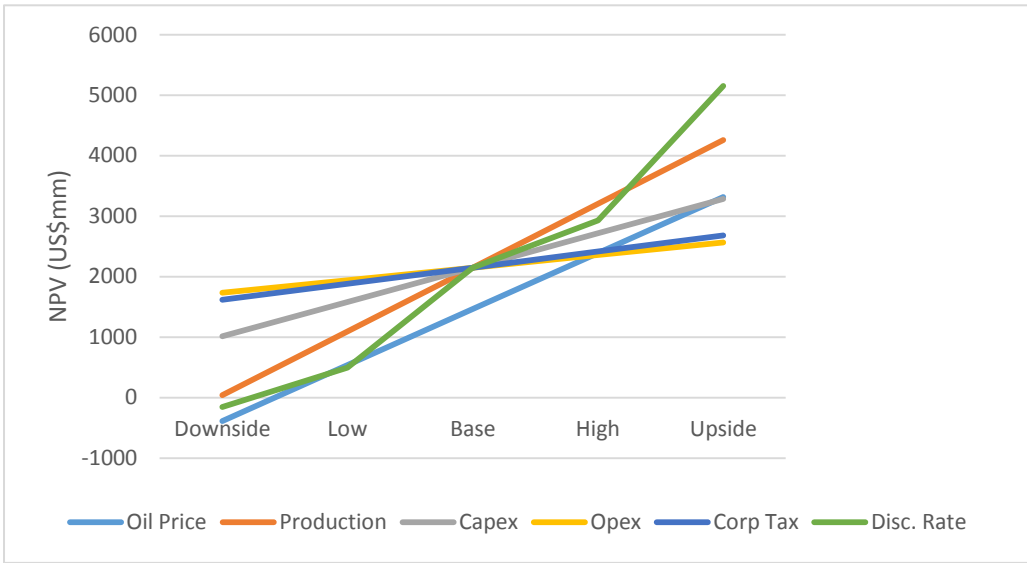
	NPV
5.0%	5152
7.5%	2932
10.0%	2149
12.5%	496
15.0%	-154

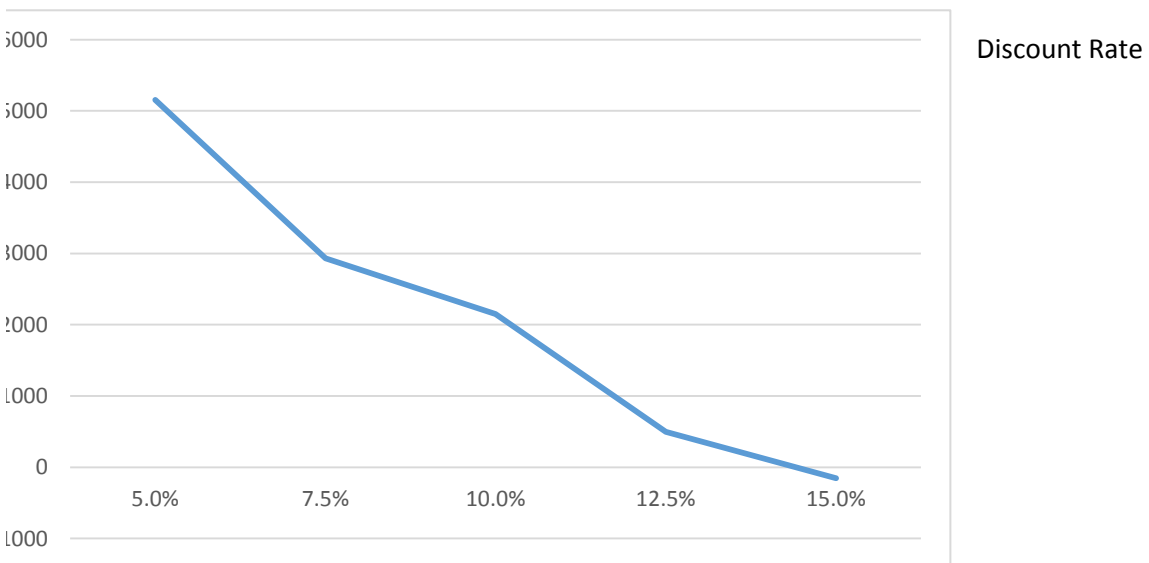
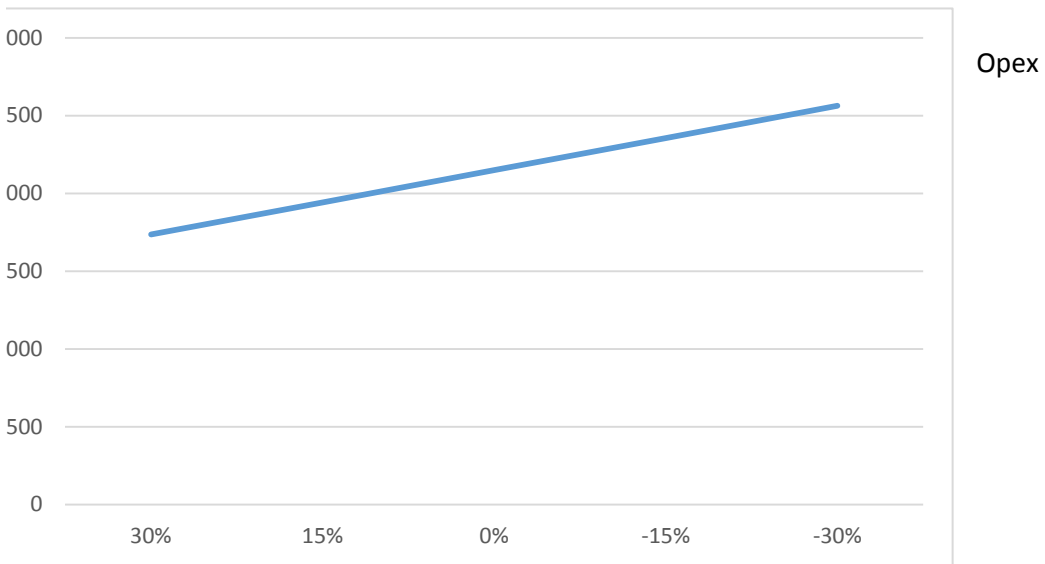
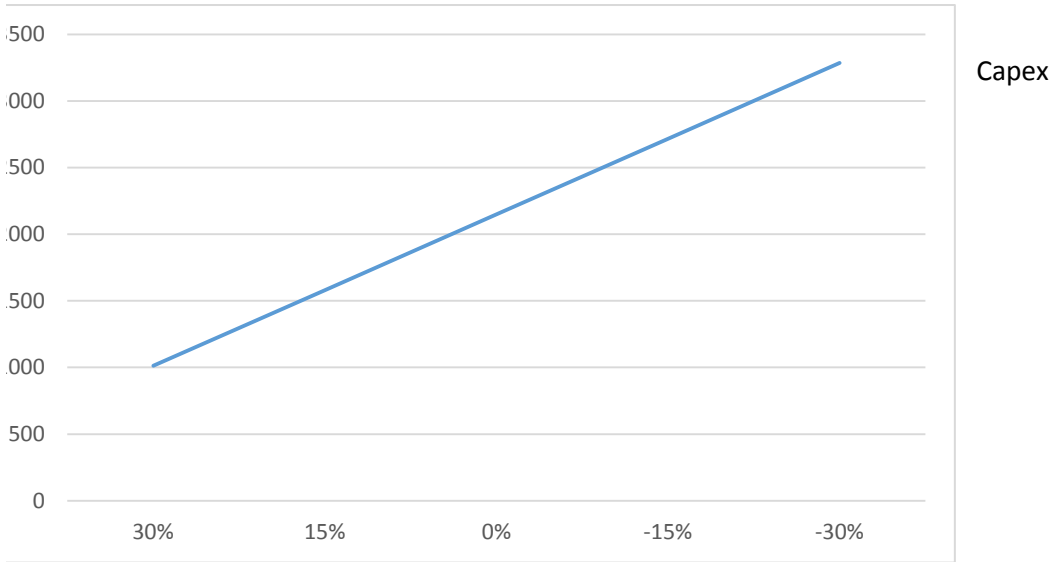


Summary

	Oil Price	Production Capex	Opex	Corp Tax	Disc. Rate	
Downside	-388	40	1012	1735	1615	-154
Low	539	1094	1580	1942	1882	496
Base	1465	2149	2149	2149	2149	2149
High	2392	3203	2717	2356	2415	2932
Upside	3318	4257	3285	2563	2682	5152







Exploration Well Analysis

Chance of Success	0%
Cost of Well	0 US\$mm
NPV of Success	#DIV/0!
Dry Hole	0.0
Successful Well	#DIV/0!
EMV	#DIV/0!

PSA Regime

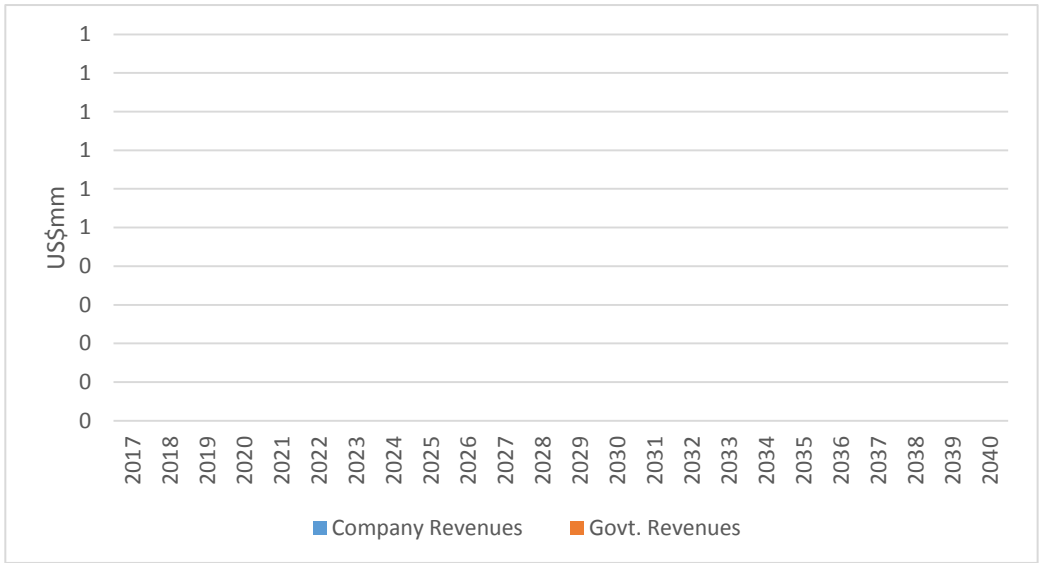
	2017	2018	2019	2020	2021	2022
Company Revenues	0	0	0	0	0	0
Operating Costs	0	0	0	0	0	0
Transport Costs	0	0	0	0	0	0
Operating Taxes	0	0	0	0	0	0
EBITDA	0	0	0	0	0	0
Depreciation	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
EBIT	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Tax on EBIT <i>Corporate Tax Rate</i>	#DIV/0! 20%	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Post tax cashflow	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
CAPEX	-70	-28	-1.5	-1.5	-1.5	-1.5
Free Cashflow (FCF)	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Cumulative FCF	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Discount Rate	10%					
Discount Factor	1.10	1.21	1.33	1.46	1.61	1.77
Discounted Cashflow (DCF)	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
NPV (\$mm)	#DIV/0!					
IRR (%)	#####					

Revenue Calculation

	Company	Govt				
Cost Oil	80%					
Profit Oil	50%	50%				
	2017	2018	2019	2020	2021	2022
Total Revenues	0	0	0	0	0	0
Govt Royalty	0	0	0	0	0	0
Taxable Revenues	1%	0	0	0	0	0
Cost Oil						
80% of Revenues	0	0	0	0	0	0

Accumulated Cost Oil	0	0	0	0	0	0
Annual Costs	-28	-2	-2	-2	-2	-2
Accumulated Costs	-28	-30	-31	-33	-33	-34
Payback	-28	-30	-31	-33	-33	-34
	0	0	0	0	0	0
Cost Oil to Company	0	0	0	0	0	0
Profit Oil	0	0	0	0	0	0
Profit Oil						
Company	0	0	0	0	0	0
Govt	0	0	0	0	0	0
Total Company Revenues	0	0	0	0	0	0
	2017	2018	2019	2020	2021	2022
Company Revenues	0	0	0	0	0	0
Govt. Revenues	0	0	0	0	0	0

0	0	0	0	0	0	0	0	0
-2	-2	-2	-2	-2	-2	-2	-2	-2
-36	-37	-39	-40	-42	-43	-45	-46	-48
-36	-37	-39	-40	-42	-43	-45	-46	-48
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
2023	2024	2025	2026	2027	2028	2029	2030	2031
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0



Questions

Real and Nominal

	2018	2019	2020	2021	2022	2023
Q1	100	102.5	105.1	107.7	110.4	113.1

Q2

	2018	2019	2020	2021	2022	2023
Real	60	60	60	60	60	60
Nominal	60	61.20	62.42	63.67	64.95	66.24

Inflation 2%

Real +1% 60 60.60 61.21 61.82 62.44 63.06

NPV and DCF

Q1

	2018	2019	2020	2021	2022	2023	2024	2025
US\$m	100	100	100	100	100	100	100	100
Discount factor	1.10	1.21	1.33	1.46	1.61	1.77	1.95	2.14
Discount Rate	10%							
DCF	91	83	75	68	62	56	51	47
NPV	614							
NPV Excel	614							

Q2

	2018	2019	2020	2021	2022	2023	2024	2025
Capex	-187.5	-187.5	-187.5	-187.5	-187.5			
Cashflow						100	150	200
Net Cashflow	-188	-188	-188	-188	-188	100	150	200
Discount Factor	1.1	1.21	1.33	1.46	1.61	1.77	1.95	2.14
Discount Rate	10%							
DCF	-170	-155	-141	-128	-116	56	77	93
NPV	381							
NPV Excel	381							
IRR	16%							
Cost Inflation	1.25							

2026	2027
100	100
2.36	2.59
42	39

2026	2027	2028	2029	2030	2031	2032	2033	2034
250	300	300	300	300	300	300	270	243
250	300	300	300	300	300	300	270	243
2.36	2.59	2.85	3.14	3.45	3.80	4.18	4.59	5.05
106	116	105	96	87	79	72	59	48

2035	2036	2037
219	197	177
219	197	177
5.56	6.12	6.73
39	32	26