

## Time Value of Money

Money	At Jan 1						
	2020	2021	2022	2023	2024	2025	2026
US\$ in wallet	100	100.0	100.0	100.0	100.0	100.0	100.0
US\$ in bank	105	110	116	122	128	134	141
US\$ (deflated)	97	94	91	89	86	83	81
Inflation	3%	3%	3%	3%	3%	3%	3%
Interest Rate	5%	5%	5%	5%	5%	5%	5%
Multiplier	1.05	1.10	1.16	1.22	1.28	1.34	1.41
	95.24	90.70	86.38	82.27	78.35	74.62	71.07
Cost of chocolate							
	2020	2021	2022	2023	2024	2025	2026
US\$ flat	1	1	1	1	1	1	1
US\$ inflation	1.03	1.06	1.09	1.13	1.16	1.19	1.23
US\$							
Bars of chocolate							
	2020	2021	2022	2023	2024	2025	2026
US\$	100	100	100	100	100	100	100
US\$	97.09	94.26	91.51	88.85	86.26	83.75	81.31
US\$							

## Real versus Nominal

Costs	At Dec 31						
	2018	2019	2020	2021	2022	2023	2024
US\$ Nominal	1	1	1.00	1.00	1.00	1.00	1.00
Inflation Rate	0%	0%	0%	0%	0%	0%	0%
Multiplier		1	1.00	1.00	1.00	1.00	1.00

## Money available

100

Chocolate Bars

## Money Invested

100.0

Chocolate Bars	100.0	0.0	0.0	0.0	0.0	0.0	0.0
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**US\$ Real (2018)**

Money Available  
Cost of Choc Bar

2027	2028	2029	2030
100.0	100.0	100.0	100.0
148	155	163	171
78	76	74	72
3%	3%	3%	3%
5%	5%	5%	5%
1.48	1.55	1.63	1.71
67.68	64.46	61.39	58.47

2027	2028	2029	2030
1	1	1	1
1.27	1.30	1.34	1.38

2027	2028	2029	2030
100	100	100	100
78.94	76.64	74.41	72.24

2025	2026	2027	2028
1.00	1.00	1.00	1.00

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

0.0

0.0

0.0

0.0

## Real and Nominal

	2020	2021	Year 3	Year 4	Year 5
Real	30	30	30	30	30
Nominal	30.6	31	32	32	33
Inflation	2%	2%	2%	2%	2%
Capex					
US\$2019	0				
	0				

## 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	1.05	1.10	1.16	1.22	1.28	1.34	1.41
Present Value	-9.5	-9.1	-8.6	16.5	15.7	14.9	14.2
Net Present Value	72.7						
Discount Rate	5%						
Excel Calculation	72.7						

### Example 2

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Capital Cost	-100	-200	-300				
Revenue				105	105	105	105
Operating Cost				-20	-20	-20	-20
Net Cashflow	-100	-200	-300	85	85	85	85
Discount Factor	1.10	1.21	1.33	1.46	1.61	1.77	1.95
Present Value	-90.9	-165.3	-225.4	58.1	52.8	48.0	43.6
NPV	30.7						
Discount Rate	10.0%						
IRR	10.9%						
Excel Calculation							

Internal Rate of Return

Year 8	Year 9	Year 10
20	20	20
1.48	1.55	1.63
13.5	12.9	12.3

Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16
105	105	105	105	105	105	105	105	105
-20	-20	-20	-20	-20	-20	-20	-20	-20
85	85	85	85	85	85	85	85	85
2.14	2.36	2.59	2.85	3.14	3.45	3.80	4.18	4.59
39.7	36.0	32.8	29.8	27.1	24.6	22.4	20.3	18.5

Year 17	Year 18	Year 19	Year 20
105	105	105	105
-20	-20	-20	-20
85	85	85	85
5.05	5.56	6.12	6.73
16.8	15.3	13.9	12.6



## 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 Split	Debt 50%	Equity 50%	
Cost of Debt	0.00%		
Cost of Equity	0.00%		
WACC	0.00%		

## An Example Shale Gas Field

Sensitivities		1	0%
Oil Price	1	2	15%
Production	1	3	30%
Operating Costs & Transport	1	4	-15%
Capex	1	5	-30%

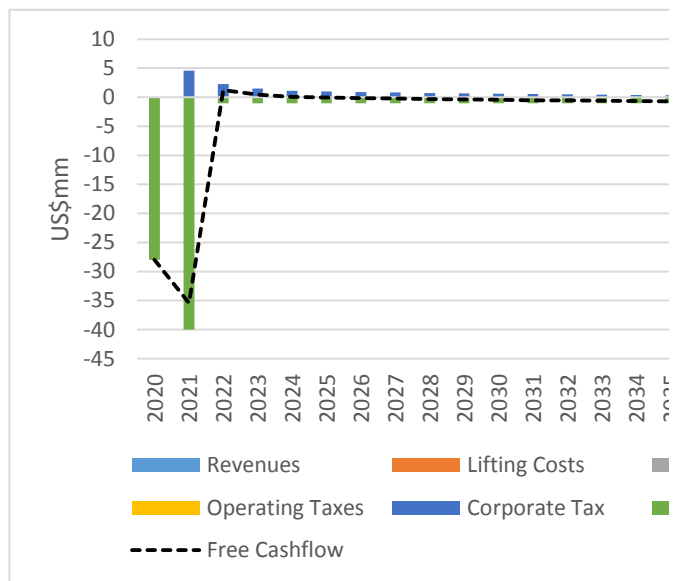
	2020	2021	2022	2023	2024	2025
Revenues	0	0	0	0	0	0
Operating Costs	0	0	0	0	0	0
Transport Costs	0	0	0	0	0	0
Operating Taxes	0	0	0	0	0	0
EBITDA	0	0	0	0	0	0
Depreciation <i>Straight Line (0) or Unit of Prod (1)</i>	0 1	-23	-11	-7	-6	-5
EBIT	0	-23	-11	-7	-6	-5
Tax on EBIT <i>Corporate Tax Rate</i>	0 20%	5	2	1	1	1
Post tax cashflow	0	5	2	1	1	1
CAPEX	-28	-40	-1	-1	-1	-1
Free Cashflow (FCF)	-28	-35	1	0	0	0
Cumulative FCF	-28	-63	-62	-62	-62	-62
Discount Rate	0.0%					
Discount Factor	1.00	1.00	1.00	1.00	1.00	1.00
Discounted Cashflow (DCF)	-28	-35	1	0	0	0
NPV (\$mm)	-73					
IRR (%)	#NUM!					
Payback (years)	10	When does cumulative cashflow turn positive				
Excel Calculation	-\$45					

**Breakeven Gas Price**      \$0.00      *After Goal Seek Function in Data:What If*

Alternative NPV (terminal value)						
FCF for 10 years	-28	-35	1	0	0	0

Terminal Value						
Implied FCF	-28	-35	1	0	0	0
Implied DCF	-28	-35	1	0	0	0
NPV	-63					
Plus Cash	0					
Less Debt	0					
Total NPV	-63					
IRR	#NUM!					
<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	0	5	2	1	1	1
Capex	-28	-40	-1	-1	-1	-1
Free Cashflow	-28	-35	1	0	0	0



Base  
High  
Upside  
Low  
Downside

**Results**  
NPV -73 US\$mm  
IRR #NUM! %

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
0	0	0	0	0	0	0	0	0
-5	-4	-4	-3	-3	-3	-2	-2	-2
-5	-4	-4	-3	-3	-3	-2	-2	-2
1	1	1	1	1	1	0	0	0
1	1	1	1	1	1	0	0	0
-1	-1	-1	-1	-1	-1	-1	-1	-1
0	0	0	0	0	-1	-1	-1	-1
-62	-62	-62	-63	-63	-64	-64	-65	-66
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
0	0	0	0	0	-1	-1	-1	-1
0	0	0	0	0				

					0
0	0	0	0	0	0
0	0	0	0	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
1	1	1	1	1	1	0	0	0
-1	-1	-1	-1	-1	-1	-1	-1	-1
0	0	0	0	0	-1	-1	-1	-1





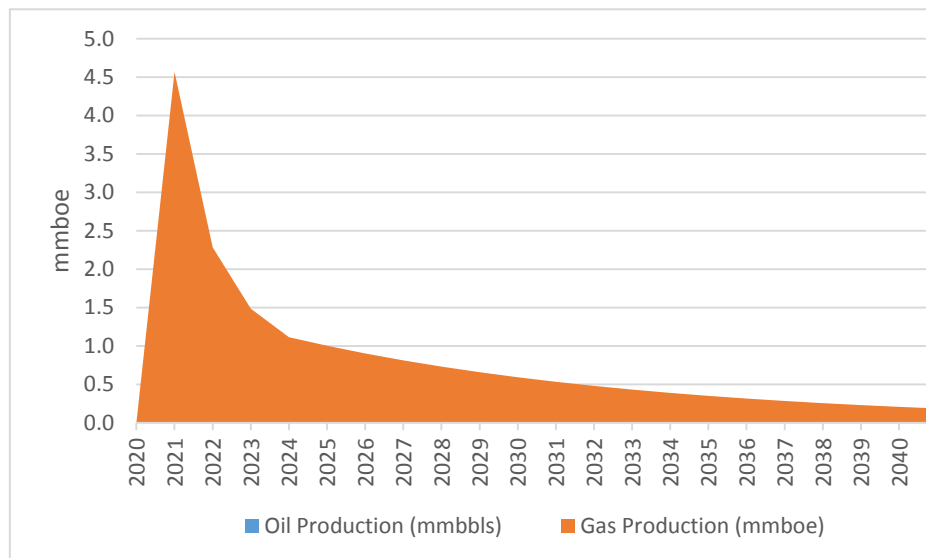


**Production**

	<b>Oil</b>		<b>Gas</b>	
	mmbbls	kbpd	Bcf	mmcf
Resources	0		1000	
Recovery Factor	0%		10%	
Reserves	0		100	
Start date	5 years after first capex		5 years after first capex	
		Peak as % Reserves		
Peak Production (mmbbls)	0	0	10	27
Time to Peak (yrs)	0		0	
Length of Peak (yrs)	0		0	
Decline rate (%) Yrs 2,3,4,5+	0%		50%	35%

	<i>First capex</i>					1st year
	2020	2021	2022	2023	2024	2025
Oil production	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total oil produced to 2040</b>	<b>0.0</b>					
Barrels per day		0	0	0	0	0
Gas Production	0.00	27.40	13.70	8.90	6.68	6.01
<b>Total gas produced to 2040</b>	<b>108.7</b>					

	2020	2021	2022	2023	2024	2025
Oil Production (mmbbls)	0.0	0.0	0.0	0.0	0.0	0.0
Gas Production (mmboe)	0.0	4.6	2.3	1.5	1.1	1.0
Total (mmboe)	0.0	4.6	2.3	1.5	1.1	1.0



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	108.66
2	124.96
3	141.26
4	92.36
5	76.06

**Total**

17

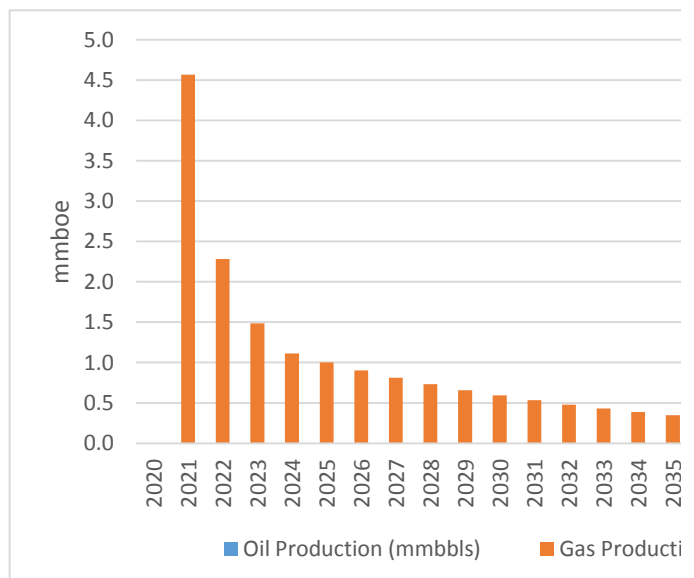
Peak as %  
Reserves

10%

25%      10%

2026	2027	2028	2029	2030	2031	2032	2033	2034
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
5.41	4.87	4.38	3.94	3.55	3.19	2.87	2.59	2.33

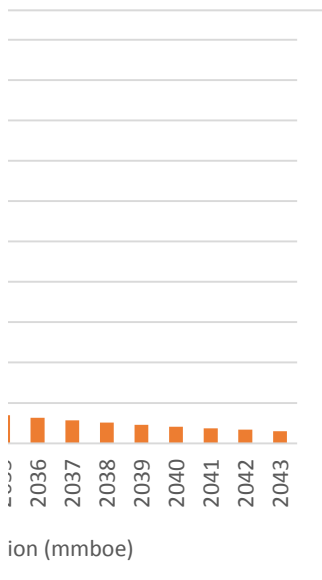
2026	2027	2028	2029	2030	2031	2032	2033	2034
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.9	0.8	0.7	0.7	0.6	0.5	0.5	0.4	0.4
0.9	0.8	0.7	0.7	0.6	0.5	0.5	0.4	0.4





2035	2036	2037	2038	2039	2040	2041	2042	2043
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
2.10	1.89	1.70	1.53	1.37	1.24	1.11	1.00	0.90

2035	2036	2037	2038	2039	2040	2041	2042	2043
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2
0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2



## Revenue Calculation

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

	2020	2021	2022	2023	2024	2025
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	27.4	13.7	8.9	6.7	6.0
<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	27	14	9	7	6
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	27.4	13.7	8.9	6.7	6.0
2	0.0	31.5	15.8	10.2	7.7	6.9
3	0.0	35.6	17.8	11.6	8.7	7.8
4	0.0	23.3	11.6	7.6	5.7	5.1
5	0.0	19.2	9.6	6.2	4.7	4.2
<b>Export Oil Price</b>	<b>-73</b>					
<b>Base Case</b>	<b>0.0</b>	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

2043

0.0

0.0

0.0

0

0

0

0

0

0.9

0.0

0.0

1

0

0

0

0

0

0.0

0.0

15%

0.0

30%

0.0

-15%

0.0

-30%

0.9

1.0

15%

1.2

30%

0.8

-15%

0.6

-30%

0.0

0.0

0.0

0.0

0.0

0.0  
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0.0

## Capital Expenditure

	Total mmmoeb	Oil mmoeb	Gas bcf	billion cubic feet	
Reserves	17	0	100		Bcf per well
Wells	13				8 12.5
Capex per well	7.0				
Capex per bbl	5.46		0.91		
Total capex	91				
% before first oil	75%	68			
% first oil to peak	0%	0			
Maintenance capex	25%	23			

### First Capex

	2020	2021	2022	2023	2024	2025
US\$mm	28	40	1.05	1.05	1.05	1.05
Before first oil	68					
Maintenance	23					
Total	91					

## Sensitivities

2	32	46	1	1	1	1
3	36	52	1	1	1	1
4	24	34	1	1	1	1
5	20	28	1	1	1	1
15%						
30%						
-15%						
-30%						

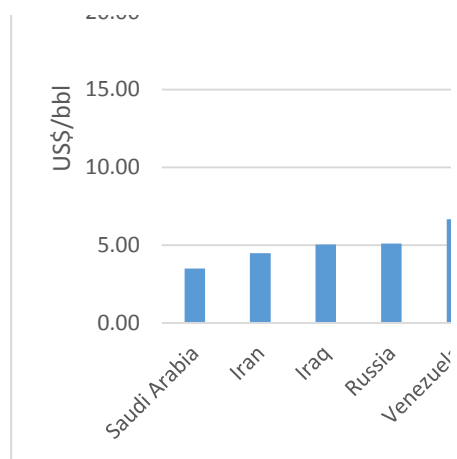
## Field Comparisons

	Cost /bbl	Capex	Reserves	Peak Prod	Peak Prod
	US\$/bbl	US\$mm	mmoeb	kbpd	mmoeb
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	\$7mm	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
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

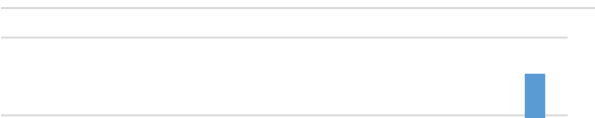
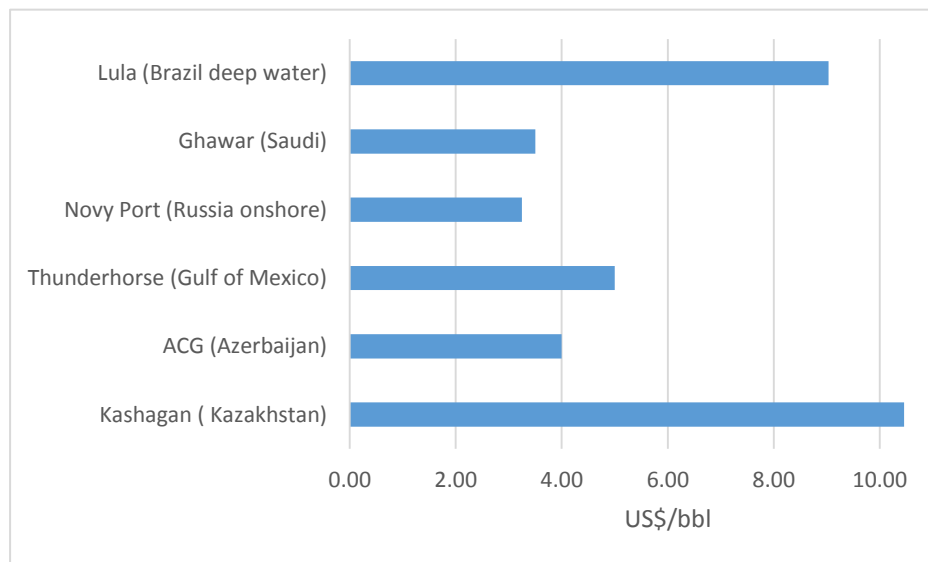


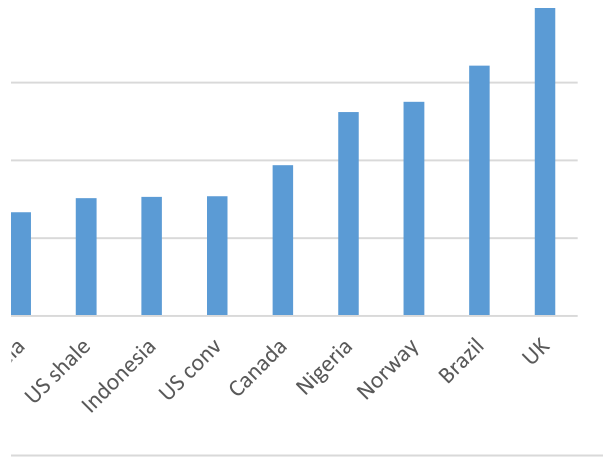
millions of barrels of oil equivalent

2026	2027	2028	2029	2030	2031	2032	2033	2034
1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05

1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1
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

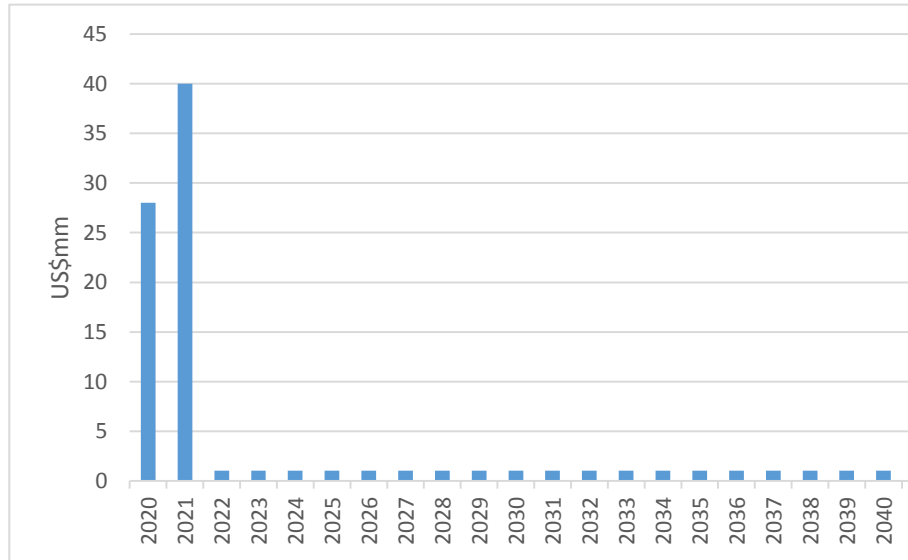






2035	2036	2037	2038	2039	2040	2041	2042	2043
1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05

1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1
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						0 US\$/bbl
Total for model	0 US\$mm							0 US\$/mcf
Variable	0.00 US\$/bbl		50%					
Fixed	0 US\$mm		50%					
Years production	23							
	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	
US\$mm	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0							

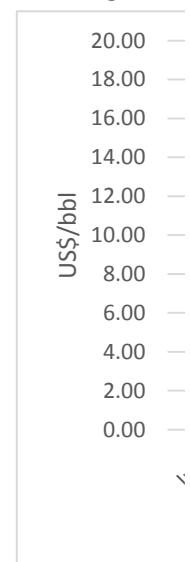
## Base Case and Sensitivities

1	0
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

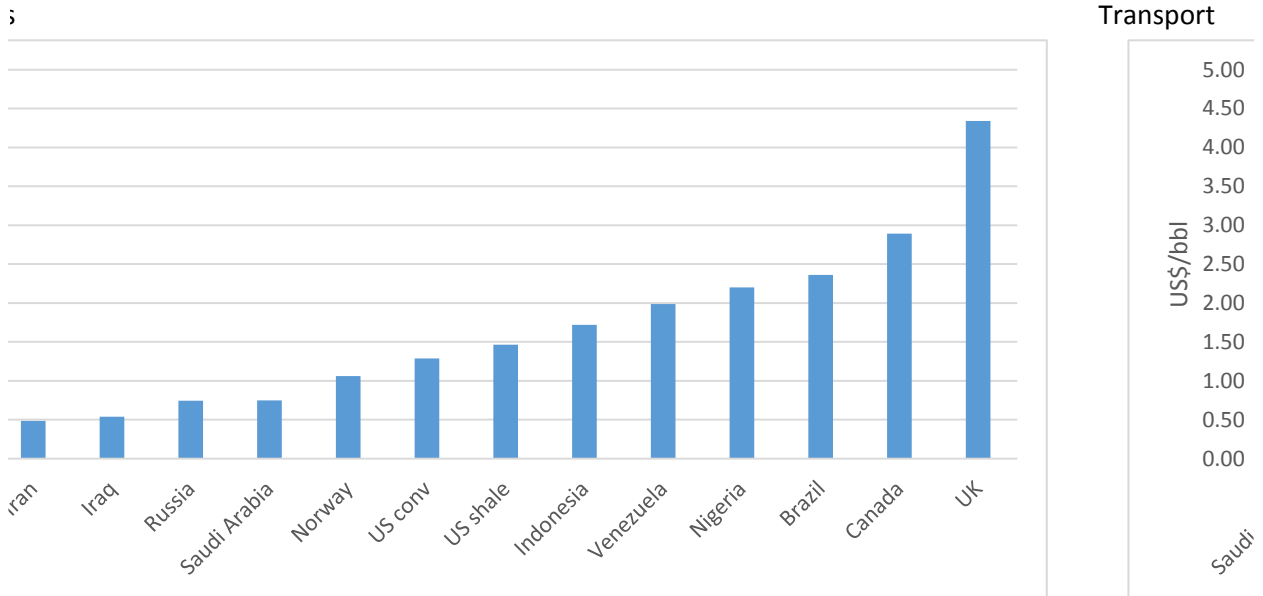
	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
--	-------------	-------------	-------------	-------------	-------------	-------------	-------------

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%

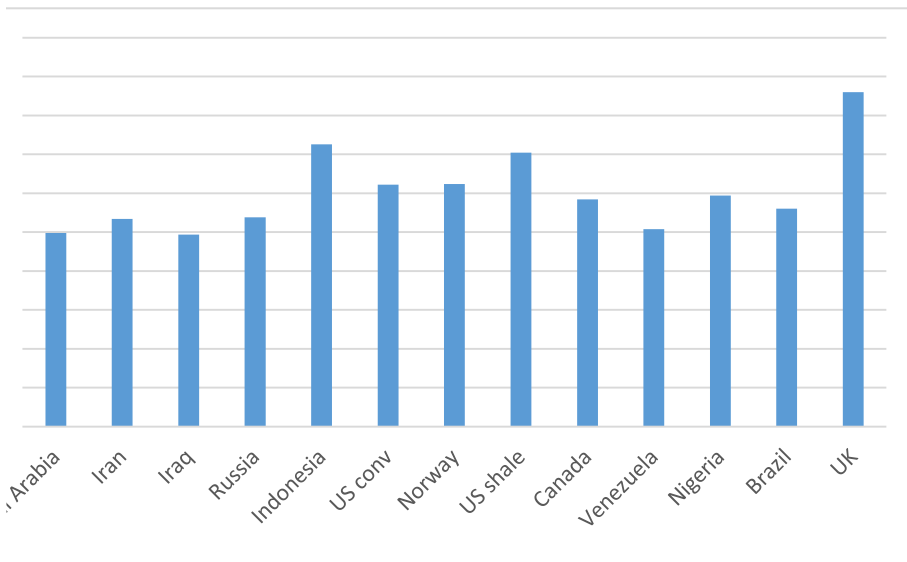
2027 2028 2029 2030 2031 2032 2033 2034  
 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0



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	0.0	0.0	0.0	0.0	0.0	0.0

2035 0.0      2036 0.0      2037 0.0      2038 0.0      2039 0.0      2040 0.0      2041 0.0      2042 0.0



2035      2036      2037      2038      2039      2040      2041      2042



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

**2043**

0.0

**2043**

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

	2020	2021	2022	2023	2024	2025
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

	2020	2021	2022	2023	2024	2025
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		0.00	0.00	0.00	0.00	0.00

### 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	91
Years of Production	23
Annual Depreciation (US\$mm)	4.0

	2020	2021	2022	2023	2024	2025
Depreciation	0	4.0	4.0	4.0	4.0	4.0
<i>Production</i>	<i>0</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>
Total	91					

### Unit of Production

Total Reserves	17
Total Produced	18
Total Capex	91
Depreciation per barrel	5.02

	2020	2021	2022	2023	2024	2025
Depreciation	0	22.9	11.5	7.5	5.6	5.0
Total	91					

<b>2026</b>	<b>2027</b>	<b>2028</b>	<b>2029</b>	<b>2030</b>	<b>2031</b>	<b>2032</b>	<b>2033</b>	<b>2034</b>
4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
1	1	1	1	1	1	1	1	1

<b>2026</b>	<b>2027</b>	<b>2028</b>	<b>2029</b>	<b>2030</b>	<b>2031</b>	<b>2032</b>	<b>2033</b>	<b>2034</b>
4.5	4.1	3.7	3.3	3.0	2.7	2.4	2.2	2.0

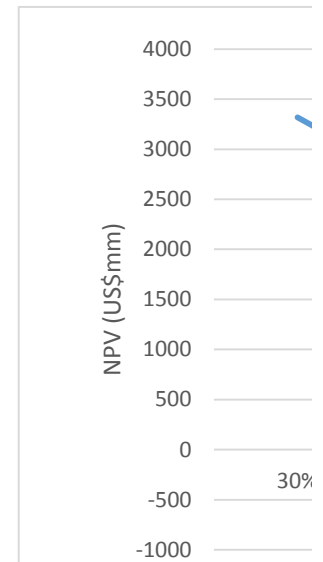
<b>2035</b>	<b>2036</b>	<b>2037</b>	<b>2038</b>	<b>2039</b>	<b>2040</b>	<b>2041</b>	<b>2042</b>	<b>2043</b>
4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
1	1	1	1	1	1	1	1	1

<b>2035</b>	<b>2036</b>	<b>2037</b>	<b>2038</b>	<b>2039</b>	<b>2040</b>	<b>2041</b>	<b>2042</b>	<b>2043</b>
1.8	1.6	1.4	1.3	1.2	1.0	0.9	0.8	0.8

## Sensitivities

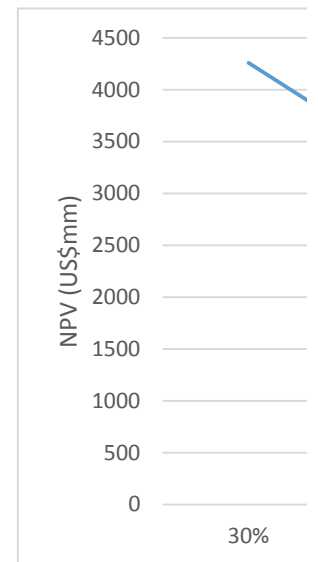
### Oil Price

	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

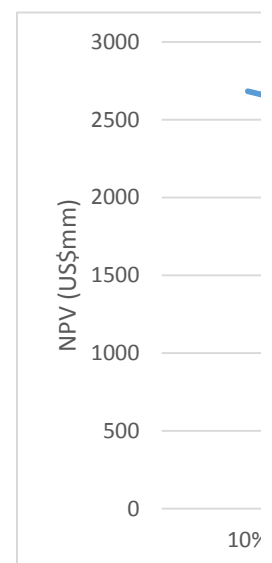
	NPV
30%	1735
15%	1942
0%	2149
-15%	2356
-30%	2563

### Corporate Tax Rate

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

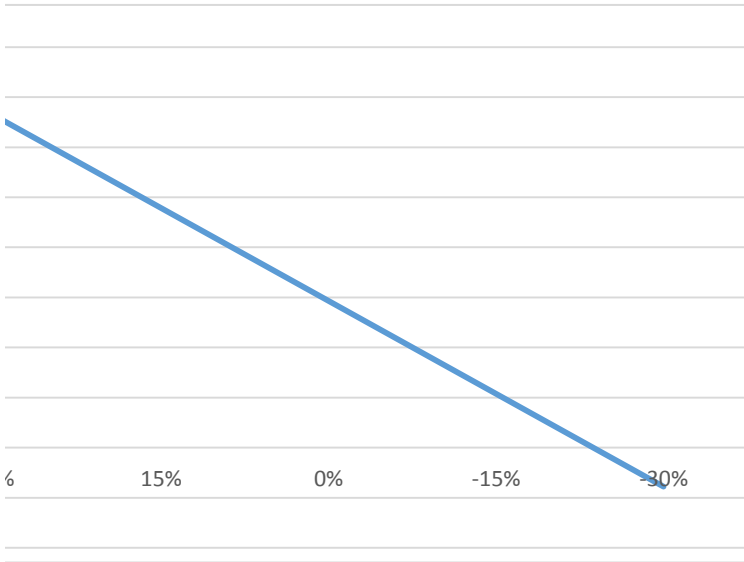
### Discount Rate

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

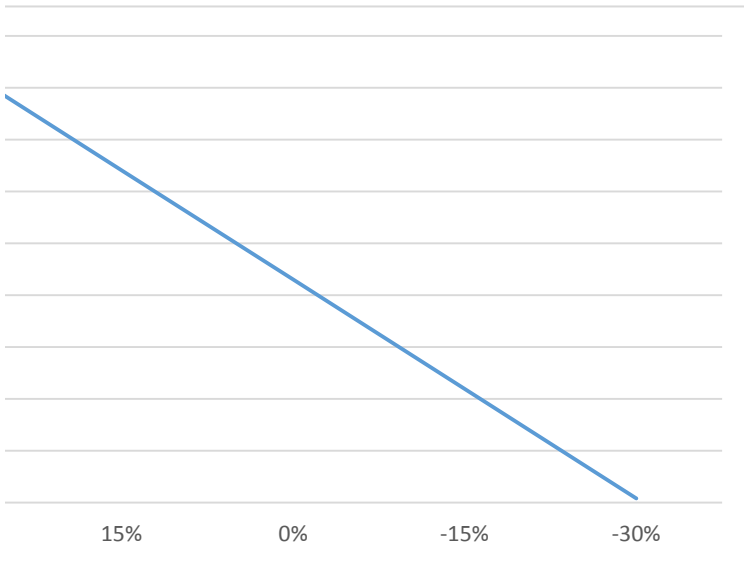


## Summary

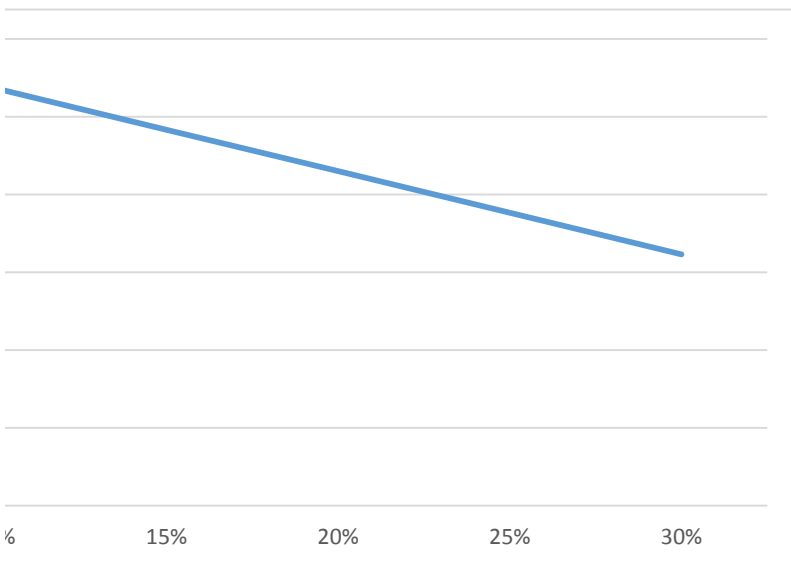
	Oil Price	Production Capex	Opex	Corp Tax	Disc. Rate	
Downside	-388	40	1012	1735	1615	-154
Low	539	1094	1580	1942	1882	496
Base	1465	2149	2149	2149	2149	2149
High	2392	3203	2717	2356	2415	2932
Upside	3318	4257	3285	2563	2682	5152



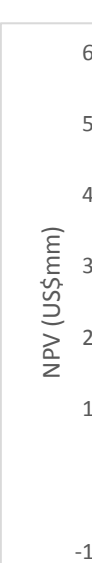
Oil Price

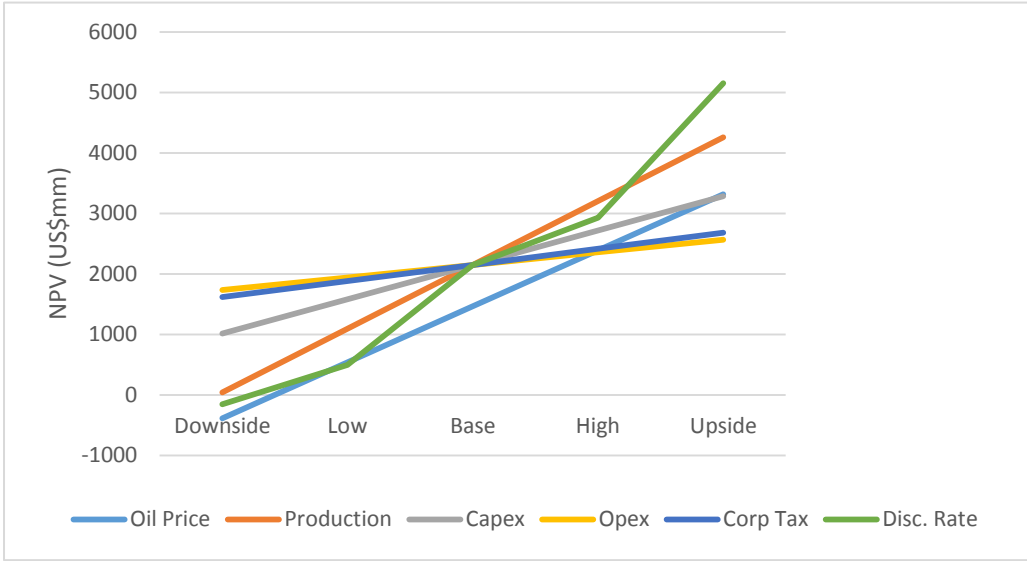


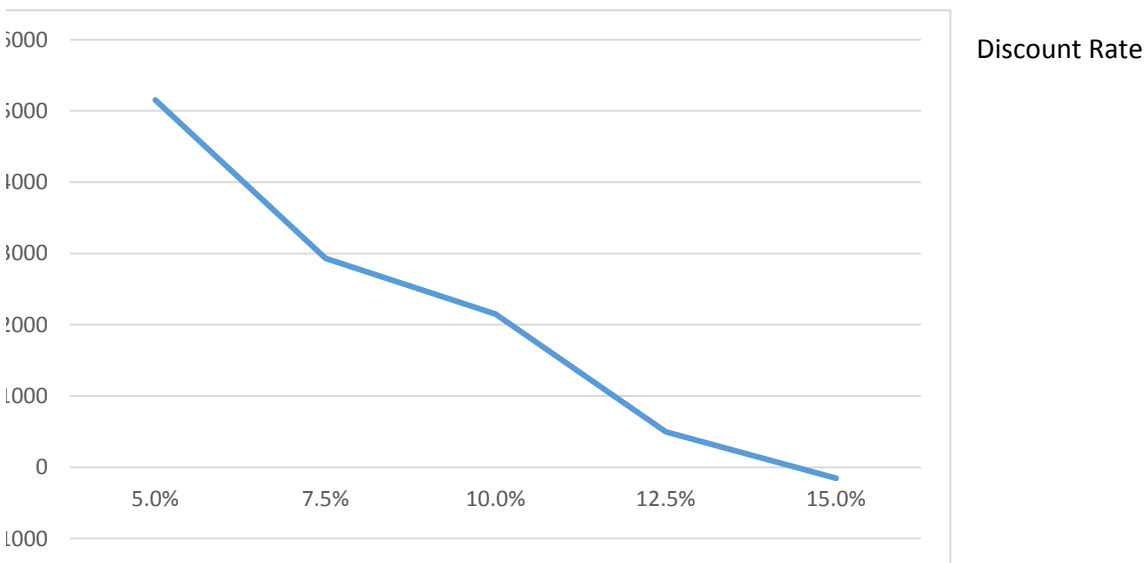
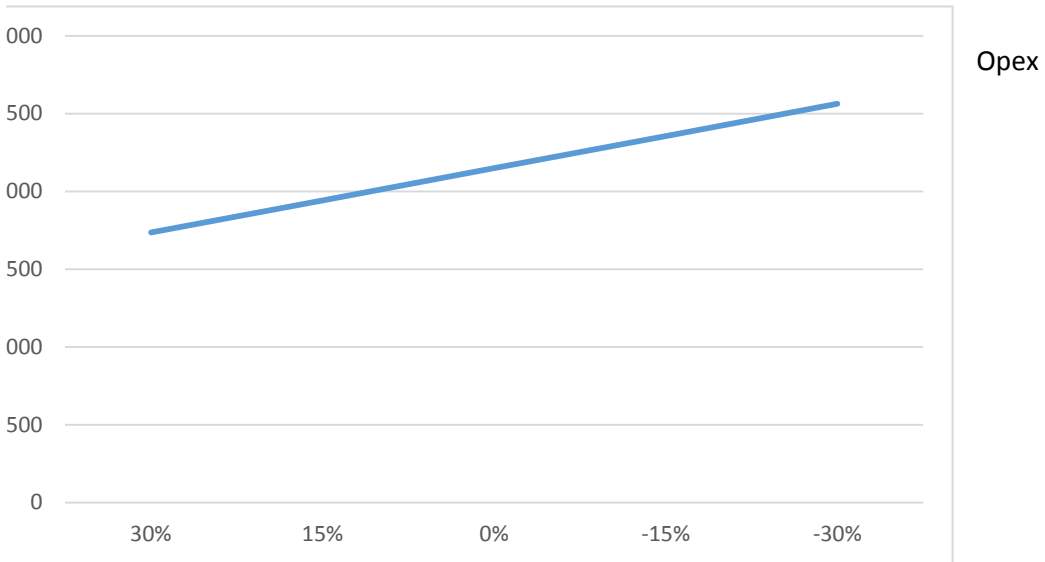
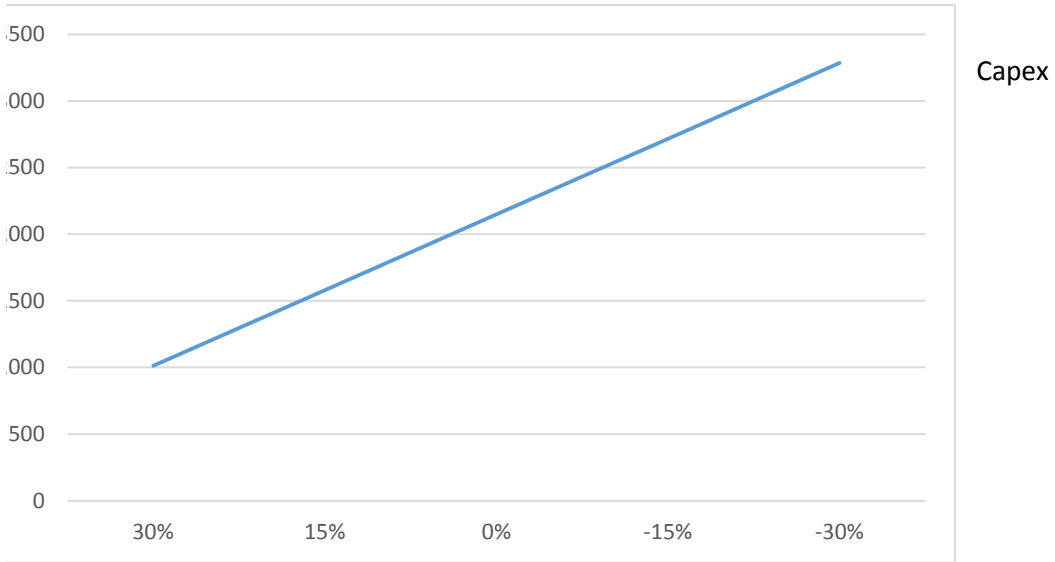
Production



Tax Rate









**Exploration Well Analysis**

Chance of Success	0%
Cost of Well	0 US\$mm
NPV of Success	-73
Dry Hole	0.0
Successful Well	0
EMV	0

**PSA Regime**

	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>
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	0	-22.9441	-11.4721	-7.45684	-5.59263	-5.03337
EBIT	0	-23	-11	-7	-6	-5
Tax on EBIT <i>Corporate Tax Rate</i>	0 20%	4.588825	2.294413	1.491368	1.118526	1.006673
Post tax cashflow	0	5	2	1	1	1
CAPEX	-28	-40	-1.05	-1.05	-1.05	-1.05
Free Cashflow (FCF)	-28	-35	1	0	0	0
Cumulative FCF	-28	-63	-62	-62	-62	-62
Discount Rate	10%					
Discount Factor	1.10	1.21	1.33	1.46	1.61	1.77
Discounted Cashflow (DCF)	-25	-29	1	0	0	0
NPV (\$mm)	-56					
IRR (%)	#NUM!					

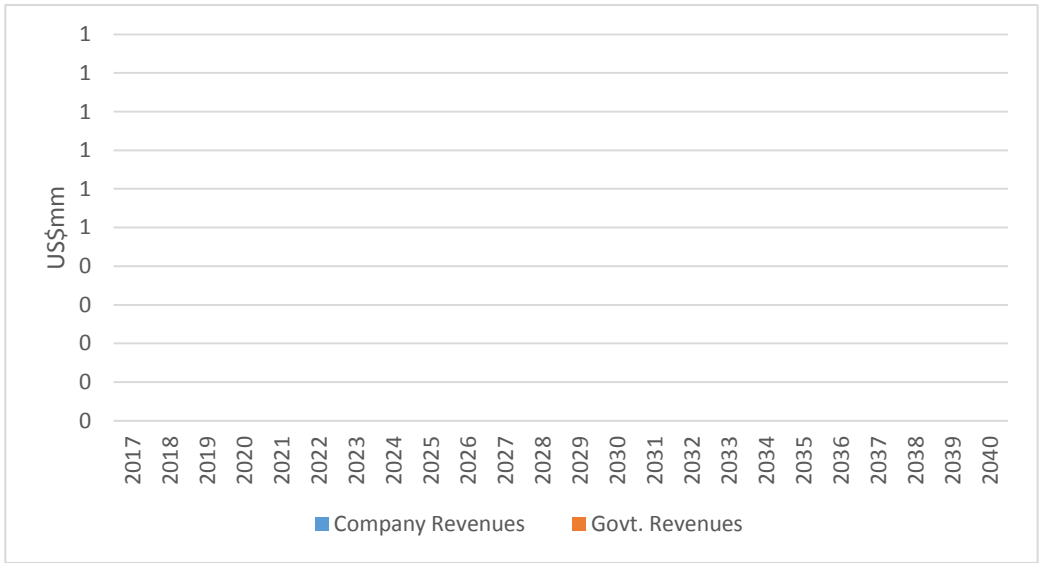
**Revenue Calculation**

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

Accumulated Cost Oil	0	0	0	0	0	0
Annual Costs	-40	-1	-1	-1	-1	-1
Accumulated Costs	-40	-41	-42	-43	-43	-44
Payback	-40	-41	-42	-43	-43	-44
	0	0	0	0	0	0
<b>Cost Oil to Company</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Profit Oil	0	0	0	0	0	0
<b>Profit Oil</b>						
Company	0	0	0	0	0	0
Govt	0	0	0	0	0	0
<b>Total Company Revenues</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>
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
-1	-1	-1	-1	-1	-1	-1	-1	-1
-45	-46	-47	-48	-49	-51	-52	-53	-54
-45	-46	-47	-48	-49	-51	-52	-53	-54
0	0	0	0	0	0	0	0	0
<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>	<b>2029</b>	<b>2030</b>	<b>2031</b>
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
<b>Q1</b>	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
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### NPV and DCF

#### Q1

	2018	2019	2020	2021	2022	2023	2024	2025
US\$mm	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