

An Example Oil Field

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

	2017	2018	2019	2020	2021	2022
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	0	0	0	0	0
EBIT	0	0	0	0	0	0
Tax on EBIT	0	0	0	0	0	0
<i>Corporate Tax Rate</i>	<i>20%</i>					
Post tax cashflow	0	0	0	0	0	0
CAPEX	0	0	0	0	0	0
Free Cashflow (FCF)	0	0	0	0	0	0
Cumulative FCF	0	0	0	0	0	0
Discount Rate	0.0%					
Discount Factor	1.00	1.00	1.00	1.00	1.00	1.00
Discounted Cashflow (DCF)	0	0	0	0	0	0
NPV (\$mm)	0					
IRR (%)	#ČÍSLO!					
Excel Calculation	\$0					
Alternative NPV (terminal value)						
FCF for 10 years	0	0	0	0	0	0
Terminal Value						
Implied FCF	0	0	0	0	0	0
Implied DCF	0	0	0	0	0	0

NPV	0
Plus Cash	0
Less Debt	0
Total NPV	0
IRR	#ČÍSLO!
<i>EBITDA Multiple</i>	7

	2017	2018	2019	2020	2021	2022
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	0	0	0	0	0
Free Cashflow	0	0	0	0	0	0
Capex	0	0	0	0	0	0

Time Value of Money

	At Jan 1						
	2018	2019	2020	2021	2022	2023	2024
US\$	100						
US\$						100	
US\$							
Interest Rate	0%	0%	0%	0%	0%	0%	0%
Multiplier	1	1.00	1.00	1.00	1.00	1.00	1.00

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

2025	2026	2027	2028
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			100
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0%	0%	0%	
1.00	1.00	1.00	

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

Example Discounted Cashflow

Example 1

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	
Cashflow	0	0	0	0	0	0	0	0
Discount Factor								
Discounted Cashflow								
NPV	0.0							
Discount Rate	0%							
Excel Calculation	0.0							

Example 2

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	
Cost	0	0	0					
Revenue					0	0	0	0
Net Cashflow	0	0	0	0	0	0	0	0
Discount Factor								
Discounted Cashflow								
NPV								
Discount Rate	0%							
Excel Calculation	0.0							

Year 8	Year 9	Year 10
0	0	0

Year 8	Year 9	Year 10
0	0	0
0	0	0

Revenue Calculation

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

	2017	2018	2019	2020	2021	2022	2023
Oil Production	0.0	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	0.0
Export Sales	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Domestic Revenue	0	0	0	0	0	0	0
Export Revenue	0	0	0	0	0	0	0
Total Oil Revenue	0	0	0	0	0	0	0
Gas Production	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Domestic Sales	0	0	0	0	0	0	0
Export Sales	0	0	0	0	0	0	0
Domestic Revenue	0	0	0	0	0	0	0
Export Revenue	0	0	0	0	0	0	0
Total Gas Revenue	0	0	0	0	0	0	0
Total Revenues	0	0	0	0	0	0	0
Oil Production Scenarios							
1	0.0	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	0.0
3	0.0	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	0.0
5	0.0	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	0.0
2	0.0	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	0.0
4	0.0	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	0.0
Export Oil Price							
Base Case	0.0	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	0.0
Scenario 3	0.0	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	0.0
Scenario 5	0.0	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	0.0
Scenario 2	0.0	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	0.0

Scenario 4	0.0	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	0.0

Domestic Gas Price

Base Case	0.0	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	0.0
Scenario 3	0.0	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	0.0
Scenario 5	0.0	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	0.0
Scenario 2	0	0	0	0	0	0	0
Scenario 3	0	0	0	0	0	0	0
Scenario 4	0	0	0	0	0	0	0
Scenario 5	0	0	0	0	0	0	0

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

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

0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0	0	0	0	0	0	0	0
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%

+30%

-15%

-30%

+15%

+30%

-15%

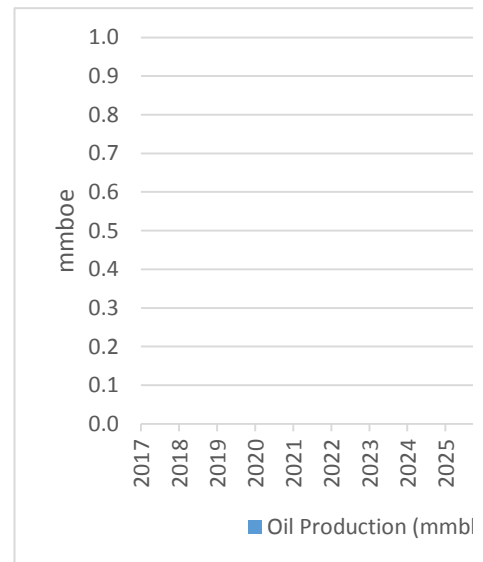
-30%

Production

	Oil			Gas	
	mmbbls	kbpd		Bcf	mmcf/d
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	0
Time to Peak (yrs)	4				
Length of Peak (yrs)	7			7	
Decline rate (%)	5%			5%	

	<i>First capex</i>					
	2017	2018	2019	2020	2021	2022
Oil production						
Total oil produced to 2040	0.0					
Gas Production						
Total gas produced to 2040	0.0					

	2017	2018	2019	2020	2021	2022
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



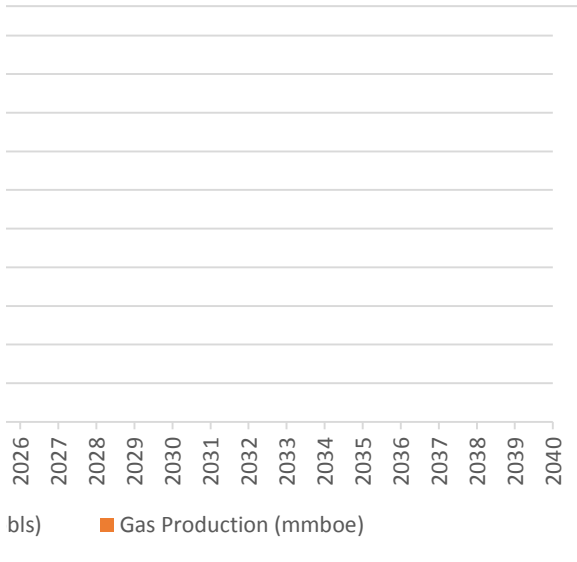
Total

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

0	0	0	0	0.0	0.0	0.0	0.0	0.0
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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
0.0	0.0	0.0	0.0	0.0	0.0	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

Reserves	0	
Capex per bbl		
Total capex	0	
% before first oil	75%	0
% first oil to peak	20%	0
Maintenance capex	5%	0

US\$mm	First Capex					
	2017	2018	2019	2020	2021	2022
Before first oil	0					
First oil to peak	0					
Maintenance	0					
Total	0					

Sensitivities

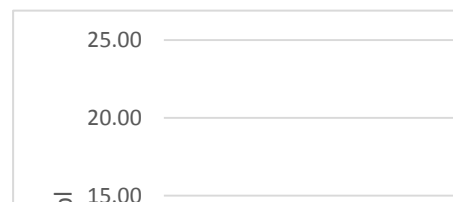
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
+15%						
+30%						
-15%						
-30%						

Field Comparisons

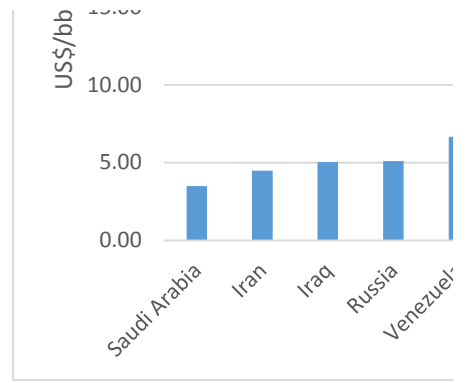
	Cost /bbl	Capex	Reserves	Peak Prod	Peak Prod
	US\$/bbl	US\$mm	mmbbls	kbpd	mmbbls
Kashagan (Kazakhstan)	10.46	136000	13000	1500	547.5
ACG (Azerbaijan)	4.00	20000	5000	620	226.3
Thunderhorse (Gulf of Mexico)	5.00	5000	1000	250	91.25
Novy Port (Russia onshore)	3.25	4500	1385	161	58.64
Ghawar (Saudi)	3.50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

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

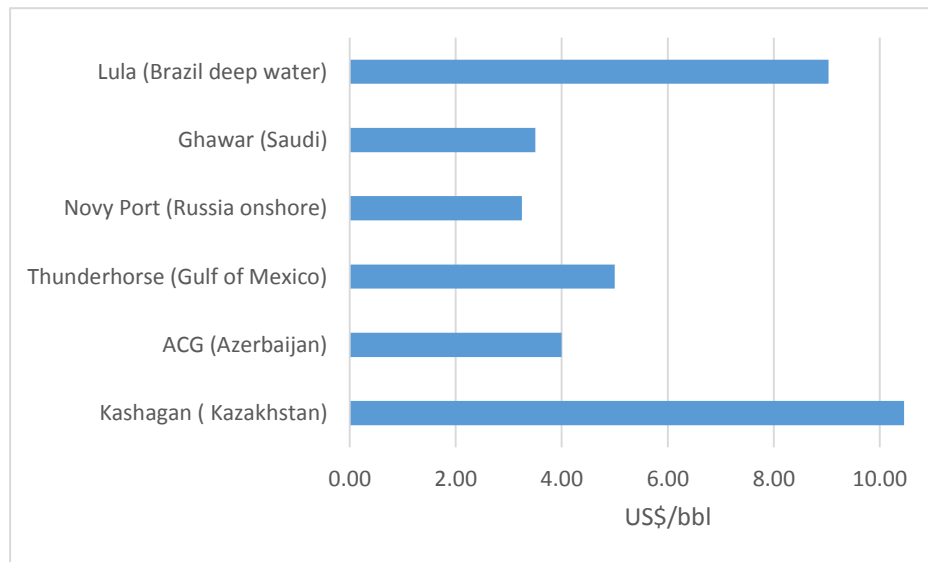


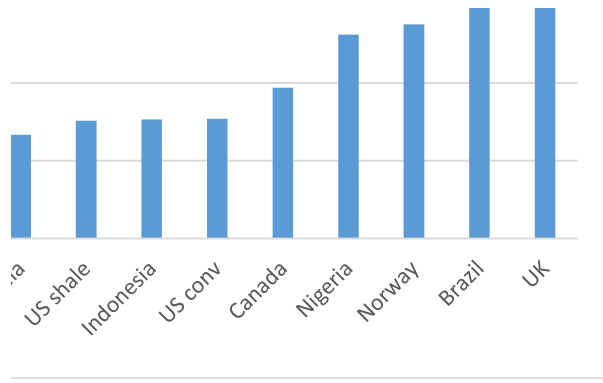
First Oil			Peak Oil						
2023	2024	2025	2026	2027	2028	2029	2030	2031	

0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0

Capex/
peak bbl
US\$/bbl

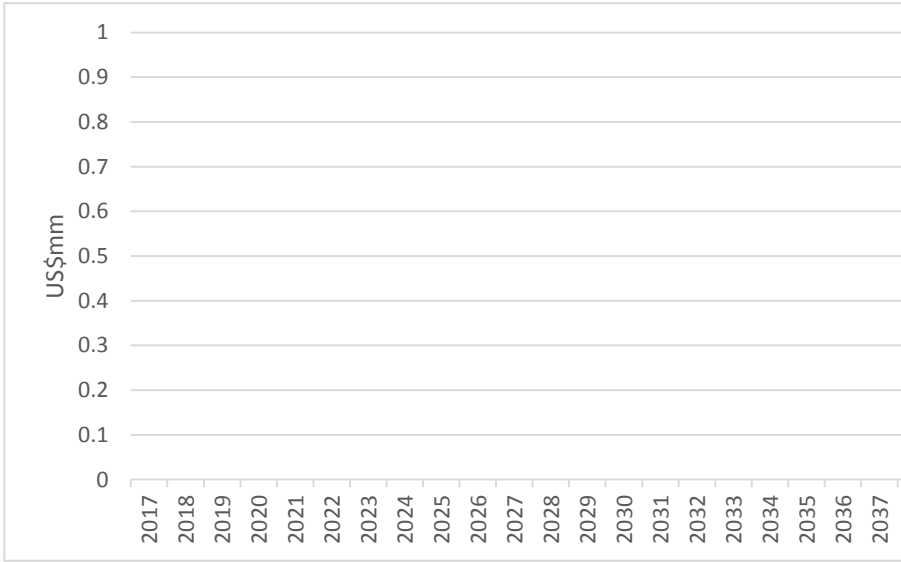
248
88
55
77
136
411

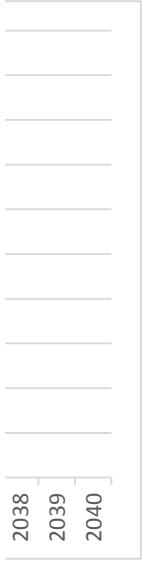




2032 2033 2034 2035 2036 2037 2038 2039 2040

0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0





Depreciation

Straight Line

Total Capex

Years of Production 18

Annual Depreciation (US\$mm) 0

	2017	2018	2019	2020	2021	2022
Depreciation	0	0	0	0	0	0
Total	0					

Unit of Production

Total Reserves

Total Produced

Total Capex

Depreciation per barrel 0.00 #####

	2017	2018	2019	2020	2021	2022
Depreciation	0	0	0	0	0	0
Total	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

2024

2025

2026

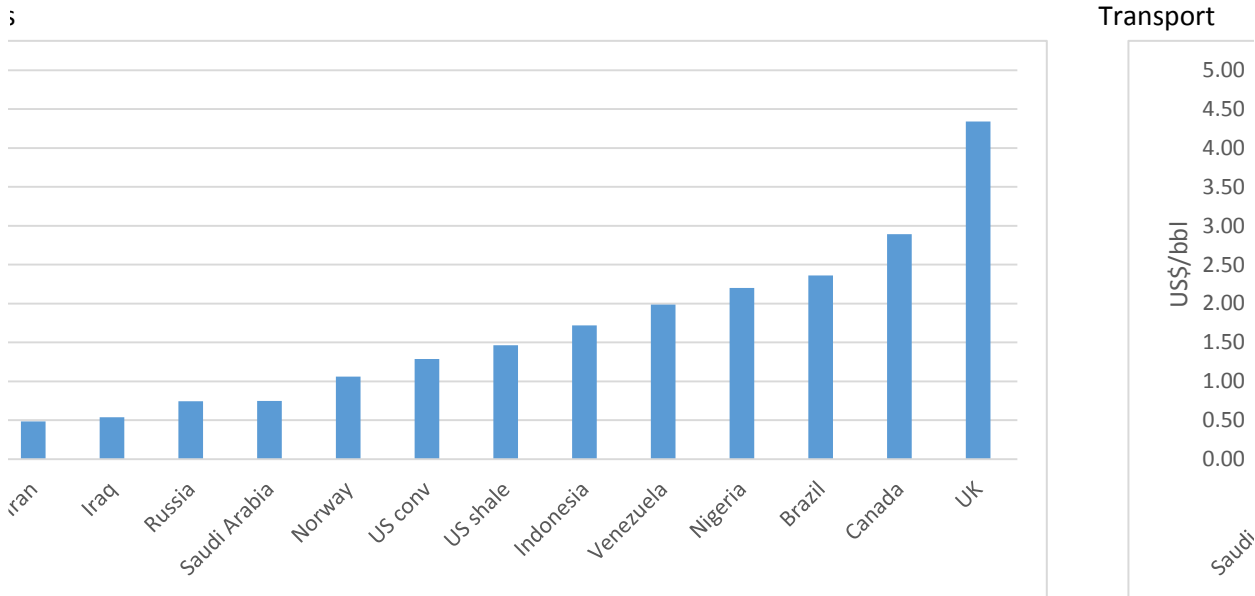
2027

2028

2029

2030

2031



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

2032

2033

2034

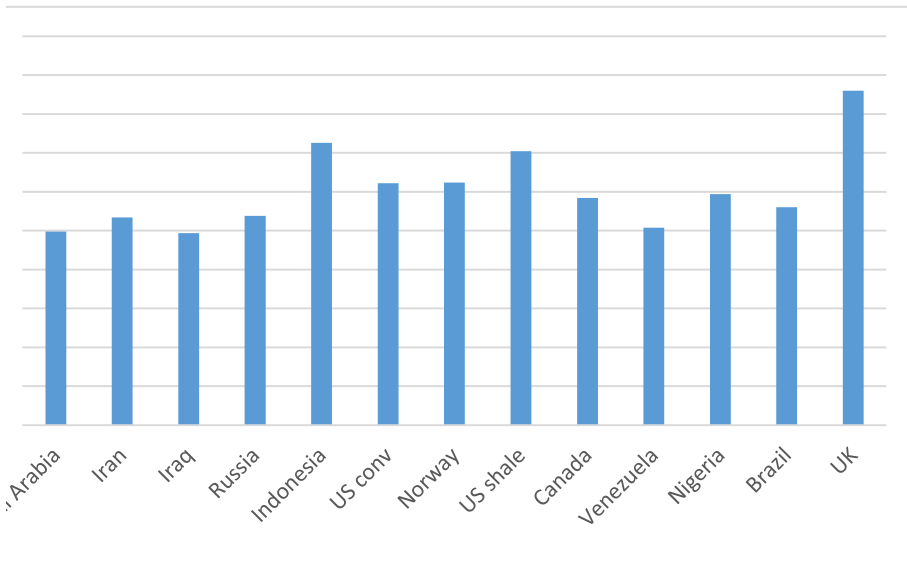
2035

2036

2037

2038

2039



2032

0.0

2033

0.0

2034

0.0

2035

0.0

2036

0.0

2037

0.0

2038

0.0

2039

0.0

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

2040

2040
0.0

0.0

0.0

Operating Taxes

Oil Tax

Export Tax	Sliding	of export barrels
Royalty	5.0%	of oil revenues
Other taxes	1.0%	of total revenues

	2017	2018	2019	2020	2021	2022
Export Tax						
Royalty						
Other						
Total	0	0	0	0	0	0

Export Tax

	Min	Max	Tax rate	US\$/bbl
Oil Price	0	14.99	0%	0.00
	15	0	15%	-2.25
	25	0	30%	-7.50
	50	0	50%	0.00
Total				-9.75

Gas Tax

Export Tax	30%	export revenues
Royalty	0.5	US\$/mcf

	2017	2018	2019	2020	2021	2022
Export Tax						
Royalty						
Total	0	0	0	0	0	0
Total Operating Taxes	0	0	0	0	0	0
Total US\$/boe						

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	6.66

WACC Calculation

Risk Free Rate

Corporate Interest Rate

Equity market return

Company Beta

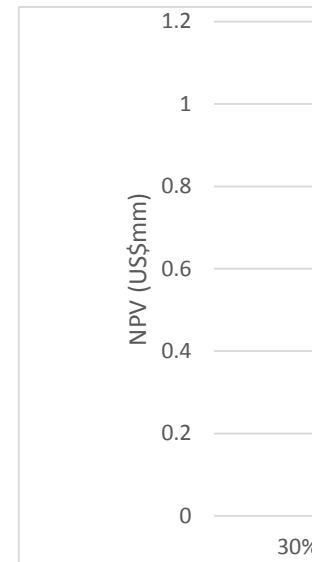
Corporate Tax Rate

	Debt	Equity
Debt:Equity Split		100%
Cost of Debt	0.00%	
Cost of Equity	0.00%	
WACC	0.00%	

Sensitivities

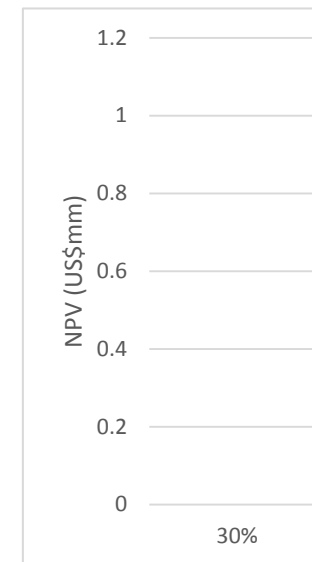
Oil Price

NPV
30%
15%
0%
-15%
-30%



Production

NPV
30%
15%
0%
-15%
-30%



Capex

NPV
30%
15%
0%
-15%
-30%

Opex

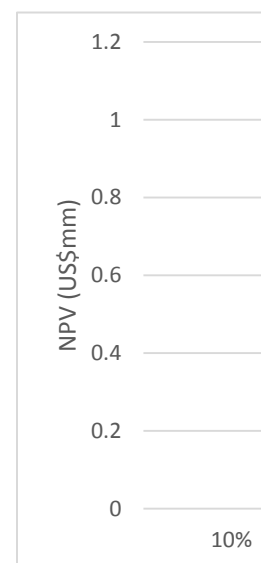
NPV
30%
15%
0%
-15%
-30%

Corporate Tax Rate

NPV
10%
15%
20%
25%
30%

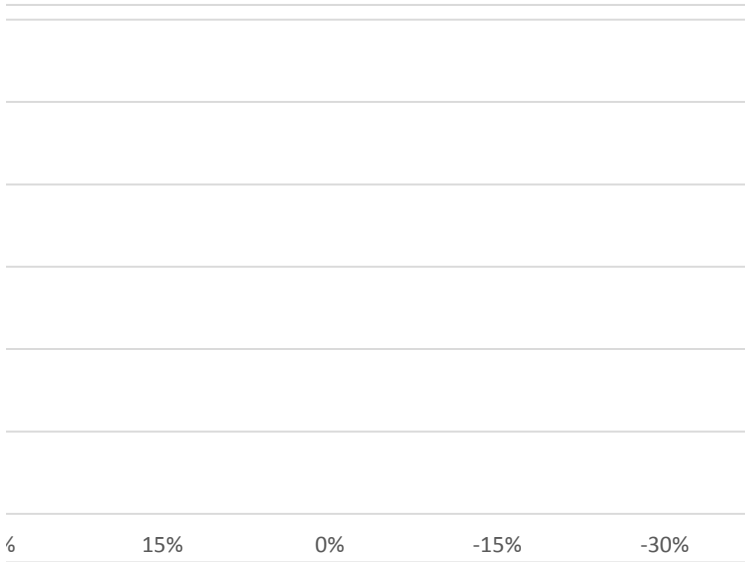
Discount Rate

NPV
5.0%
7.5%
10.0%
12.5%
15.0%

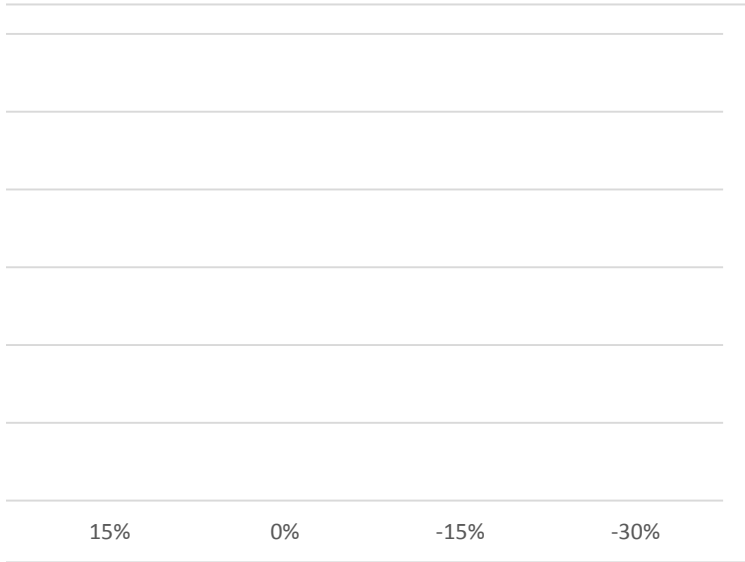


Summary

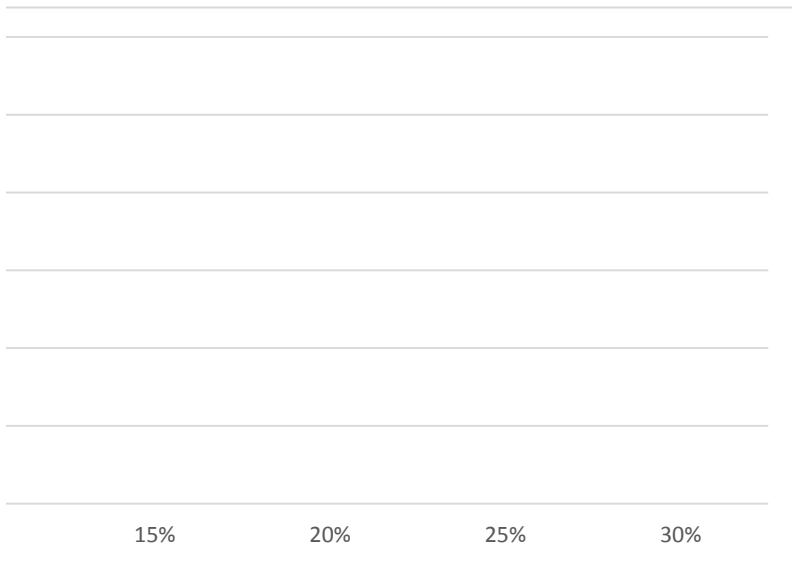
	Oil Price	Production Capex	Opex	Corp Tax	Disc. Rate	
Downside	0	0	0	0	0	0
Low	0	0	0	0	0	0
Base	0	0	0	0	0	0
High	0	0	0	0	0	0
Upside	0	0	0	0	0	0



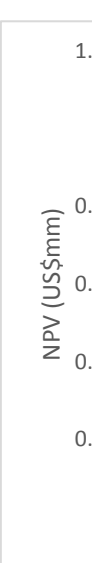
Oil Price

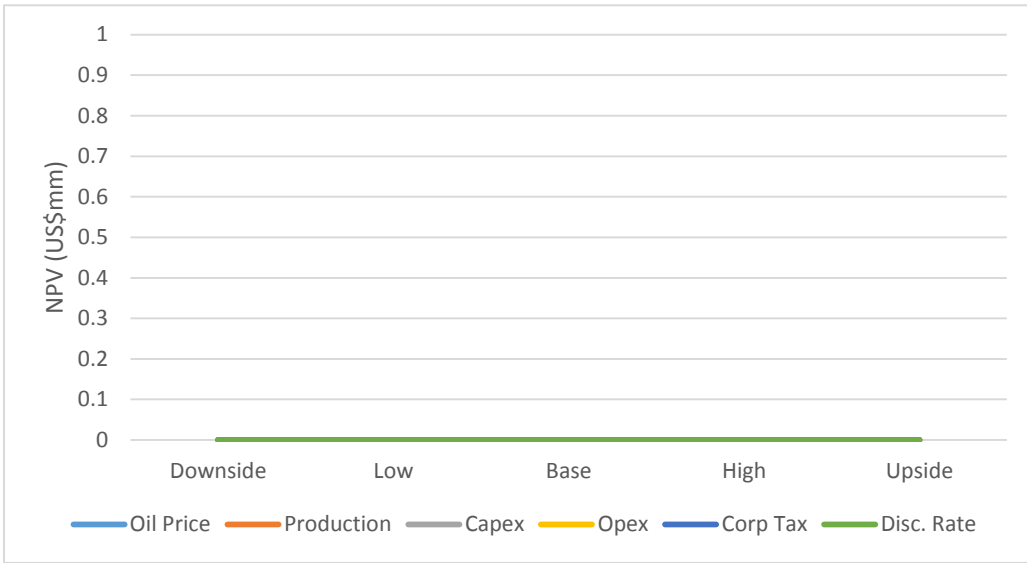


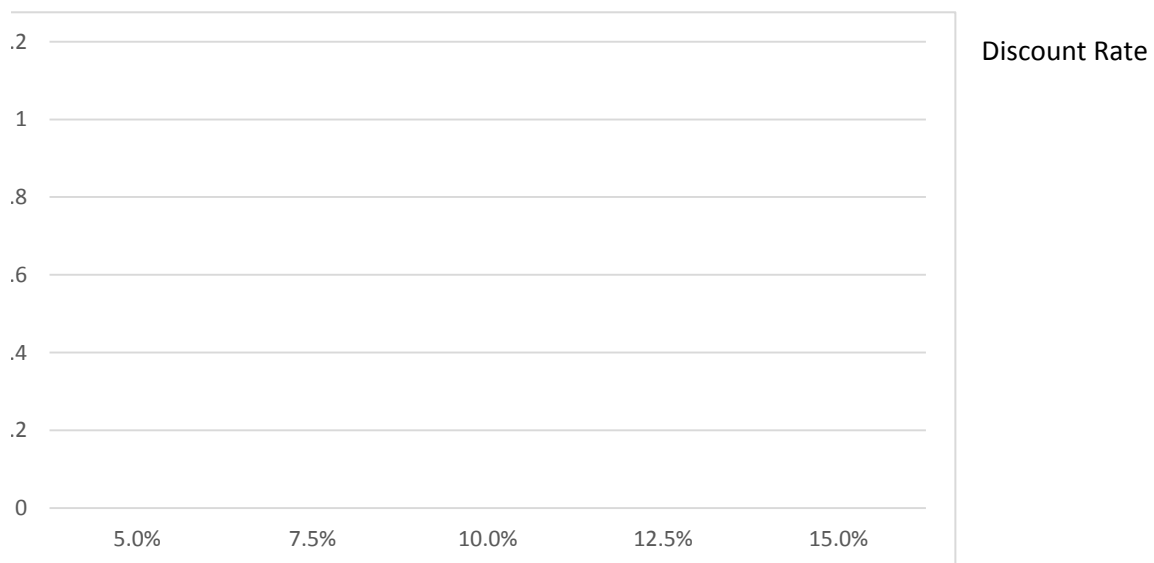
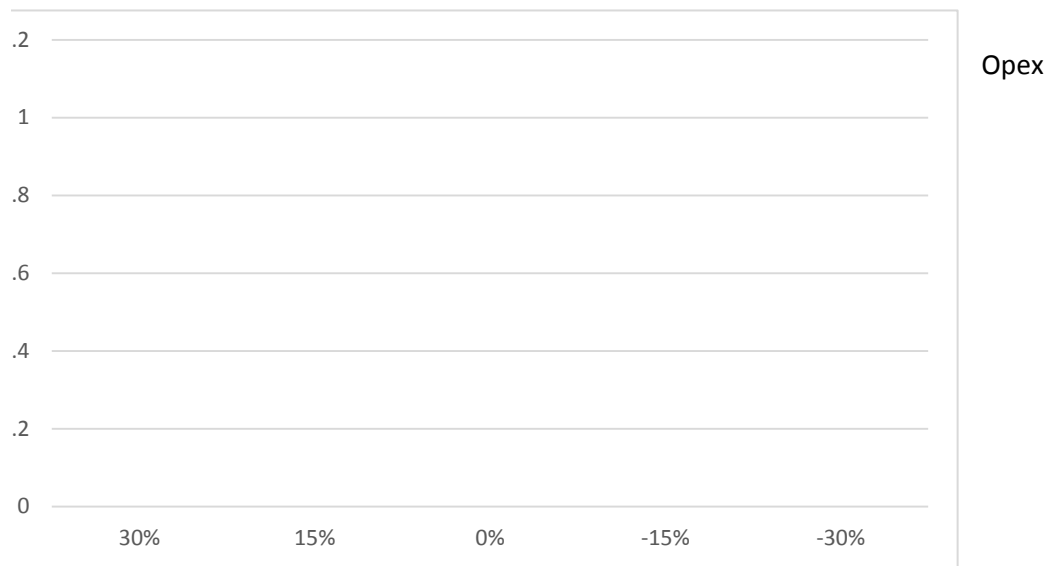
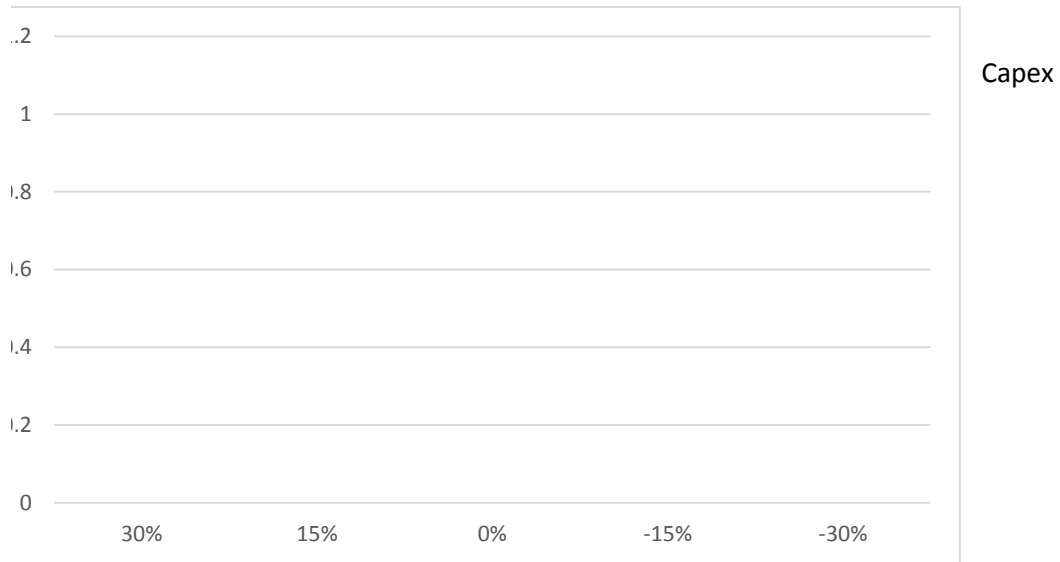
Production



Tax Rate







PSA Regime

	2017	2018	2019	2020	2021	2022	2023
Company Revenues	0	0	0	0	0	0	0
Operating Costs	0	0	0	0	0	0	0
Transport Costs	0	0	0	0	0	0	0
Operating Taxes	0	0	0	0	0	0	0
EBITDA	0	0	0	0	0	0	0
Depreciation	0	0	0	0	0	0	0
EBIT	0	0	0	0	0	0	0
Tax on EBIT <i>Corporate Tax Rate</i>	0 20%	0	0	0	0	0	0
Post tax cashflow	0	0	0	0	0	0	0
CAPEX	0	0	0	0	0	0	0
Free Cashflow (FCF)	0	0	0	0	0	0	0
Cumulative FCF	0	0	0	0	0	0	0
Discount Rate	10%						
Discount Factor	1.10	1.21	1.33	1.46	1.61	1.77	1.95
Discounted Cashflow (DCF)	0	0	0	0	0	0	0
NPV (\$mm)	0						
IRR (%)	#ČÍSLO!						

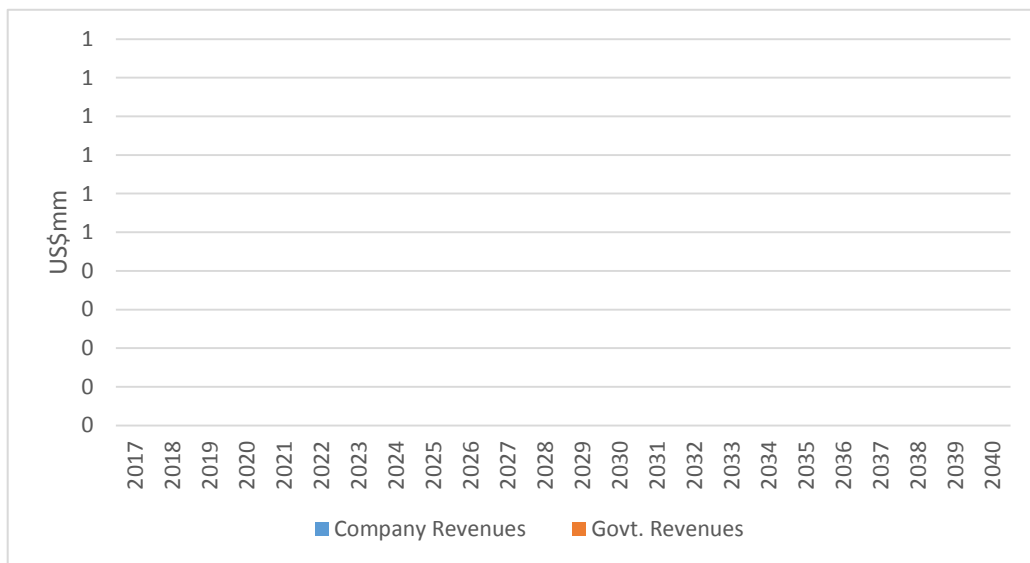
Revenue Calculation

	Company	Govt					
Cost Oil	80%						
Profit Oil	50%	50%					
	2017	2018	2019	2020	2021	2022	2023
Total Revenues	0	0	0	0	0	0	0
Govt Royalty	0	0	0	0	0	0	0
Taxable Revenues	1% 0	0	0	0	0	0	0

Cost Oil

80% of Revenues	0	0	0	0	0	0	0
Accumulated Cost Oil		0	0	0	0	0	0
Annual Costs		0	0	0	0	0	0
Accumulated Costs		0	0	0	0	0	0
Payback		0	0	0	0	0	0
Cost Oil to Company	0	0	0	0	0	0	0
Profit Oil	0	0	0	0	0	0	0
Profit Oil							
Company	0	0	0	0	0	0	0
Govt	0	0	0	0	0	0	0
Total Company Revenues	0	0	0	0	0	0	0
	2017	2018	2019	2020	2021	2022	2023
Company Revenues	0	0	0	0	0	0	0
Govt. Revenues	0	0	0	0	0	0	0

0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
2024	2025	2026	2027	2028	2029	2030	2031	2032
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0



2033	2034	2035	2036	2037	2038	2039	2040
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0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0
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5.05	5.56	6.12	6.73	7.40	8.14	8.95	9.85
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0	0	0	0	0	0	0	0
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2033	2034	2035	2036	2037	2038	2039	2040
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0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
2033	2034	2035	2036	2037	2038	2039	2040
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0

Exploration Well Analysis

Chance of Success	20%
Cost of Well	50 US\$mm
NPV of Success	0
Dry Hole	-40.0
Successful Well	0
EMV	-40

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
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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