

Appendix A – Jacket platform with dry trees

A1 TECHNICAL REPORT

Tesla

Topsides

Resume

Project name	Tesla
Location	North Sea South
Development Concept	Stand Alone
Water Depth	115 m (MSL)
Reservoir Depth	2290 m (MSL)

Platform

Concept	Jacket
Number of inlet systems	1
Living quarters capacity	40 beds
Liquid capacity	16000 Sm ³ /d

Cost

Capex facilities	6287 mill.NOK
Capex wells	1565 mill.NOK
Opex per year	495 mill.NOK
Lease costs	1905 mill.NOK
Removal and abandonment	0 mill.NOK
Cost Reference Year	2015
Currency	NOK
Currency Factor	6,00 NOK/USD

Topsides Weight Summary (tonnes)

	LQ	WH/riser	Drilling	Utilities	Process	Other	percent	Weights
Equipment	49	69	309	443	318	247	21,13	1435
Electrical	15	14	31	95	26	0	2,66	181
HVAC	17	7	9	27	0	0	0,88	60
Instrument/telecom	8	36	12	42	55	0	2,25	153
Piping	6	123	62	146	249	13	8,81	599
Surface protection, fire proofing	6	14	19	18	12	0	1,01	69
Safety and loss prevention	6	36	9	15	23	0	1,31	89
Architectural	210	14	45	89	12	0	5,44	369
Structural steel/aluminium	524	401	742	951	464	756	56,50	3838
Total dry weight	840	715	1237	1827	1158	1015	100,00	6792
Variable loads	21	107	959	183	232	51	22,85	1552
Operating weight (ex riser loads)	861	822	2196	2010	1390	1066	122,85	8344

TECHNICAL REPORT

Tesla

Date: 09.06.2015

Cost year: 2015

Currency: NOK

Region: North Sea South

Topside – Stand Alone

	Procurement			Fabrication/installation				Total	
	Weight	kUSD/t	mill.USD	mhr/t	mhr	USD/mhr	mill.USD	kUSD/t	mill.USD
Equipment	1435	104,14	149	13	18427	103	2	105	151
Electrical	181	54,33	10	289	52185	103	5	84	15
HVAC	60	43,47	3	193	11529	103	1	63	4
Instrument/telecom	153	114,10	17	289	44222	103	5	144	22
Piping	599	65,20	39	225	134509	103	14	88	53
Surface protection, fire proofing	69	32,60	2	1027	70552	103	7	138	9
Safety and loss prevention	89	32,60	3	193	17140	103	2	52	5
Architectural	369	32,60	12	77	28439	103	3	41	15
Structural aluminium	0	6,52	0	183	0	103	0	0	0
Structural steel	3838	4,89	19	64	246337	103	25	11	44
Total	6792	-	254	623341	64	47	318		
Hook-up (offshore)	6792	-	-	10	67923	265	18	3	18
Commissioning (onshore)	6792	-	-	5	33962	200	7	1	7
Commissioning (offshore)	6792	-	-	5	33962	265	9	1	9
Engineering	6792	-	-	130	883002	216	191	28	191
Total	6792	-	254	0,00	1642190	0,00	289	80	543

Marine Operations

	mob/demob	operation	duration	Day-rate	mill.USD
Transportation/logistics	5	34	45	0,13	6
Total topsides installed					549
Living quarters material		Steel		0 tonnes of aluminium	

TECHNICAL REPORT

Tesla

Date: 09.06.2015

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Substructure

Platform selected: **Jacket** /

ENG

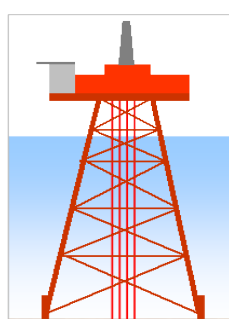
Design parameters

	Tesla
Water depth	115 m
Operating topside weight	8344 tonnes
Dry topside weight	6792 tonnes
Oil storage volume	0 m ³
Loads from flexible risers, umbilicals and cables	0 tonnes

1

Steel jacket

Maximum operating topside weight	8344 tonnes
Number of conductors	6 0
Jacket height	137 m
Top width	30 m
Top length	30 m
Bottom width	57 m
Bottom length	57 m
Jacket weight	9002 tonnes
Conductors/J-tubes/risers	485 tonnes
Piles	2760 tonnes
	0 0 0



Sum Subsea	0	0	0	0	0	0	0	0	0	0
Export pipelines	0	0	0	0	0	0	0	0	0	0
Power cables/risers	0	0	0	0	0	0	0	0	0	0
SUM Facilities	1449	2044	848	4341	455	4796	671	5467	820	6287

Capex Wells Overview

	days per well	days	mill.NOK
Drilling	38	227	1199
Completion	11	63	365
Sum Drilling and completion	48	291	1565

COST REPORT

Tesla Cost year: 2015 Currency: NOK Region: North Sea South

Removal Cost Overview

	Engineering	Decommissioning	Removal operations	Dismantling	Sub-total	Management	Base estimate	Contingency	TOTAL
Well plugging and abandonment	36	0	822	0	857	86	943	141	1085
Platform topsides	22	65	354	98	538	54	592	89	681
Platform substructure	23	14	415	65	518	52	570	85	655
Mooring lines, piles, anchors	0	0	0	0	0	0	0	0	0
Risers, conductors	1	2	15	2	20	2	22	3	25
Flowlines, umbilicals and cables	0	0	0	0	0	0	0	0	0
Export pipelines	0	0	0	0	0	0	0	0	0
Subsea equipment and structures	0	0	0	0	0	0	0	0	0
Sea bottom clean-up	1	0	24	0	25	2	27	4	31
TOTAL	83	81	1630	164	1958	196	2154	323	2477

COST REPORT

Tesla Cost year: 2015 Currency: NOK Region: North Sea South

Cost Phasing Assumptions

Capex Facilities

Number of months from project sanction to production start-up:	38	mill.NOK
Expenditure in year	1	1479
Expenditure in year	2	2959
Expenditure in year	3	1811
Expenditure in year	4	38
Total expenditure		6287

Capex Wells

Number of months for drilling and completion	10	mill.NOK
Expenditure in year	1	0
Expenditure in year	2	0
Expenditure in year	3	1565
Expenditure in year	4	0
Expenditure in year	5	0
Expenditure in year	6	0
Expenditure in year	7	0
Expenditure in year	8	0
Expenditure in year	9	0
Total expenditure	0	1565

COST REPORT

Tesla Cost year: 2015 Currency: NOK Region: North Sea South

Drilling and Completions Costs

Time for drilling	227 days	8 months
Time for completion	63 days	2 months
Total time for drilling and completion	291 days	10 months
Drilling cost	186 mill.USD	1116 mill.NOK
Completion cost	57 mill.USD	340 mill.NOK
Planning and other costs	18 mill.USD	109 mill.NOK
Total cost for drilling and completion	261 mill.USD	1565 mill.NOK
Total number of wells	6	
Average well cost	43 mill.USD	261 mill.NOK
Drilling expenditure per month	27 mill.USD	162 mill.NOK
Total steel weight of all wells	8474 tonnes	
Average steel weight per well	1412 tonnes	
Diesel consumption of MODU	5811 tonnes	20 tonnes/d
Fuel gas consumption of platform rig	2905 tonnes	10 tonnes/d

Rates

	Basis K USD/day	Index	Cost K USD/day
Platform drilling	59	1,11	66
Platform light intervention	24	1,11	27
MODU drilling - semisub	525	1,11	584
MODU drilling - jack-up	350	1,11	390
Service rate for drilling	400	1,09	437
Service rate for completion	440	1,09	481
Service rate for plugging and abandonment	260	1,09	284

21	0,00	0,00	0	0	0	0	0	0	0	0	0	0	0	0
22	0,00	0,00	0	0	0	0	0	0	0	0	0	0	0	0
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32	0,00	0,00	0	0	0	0	0	0	0	0	0	0	0	0
33	0,00	0,00	0	0	0	0	0	0	0	0	0	0	0	0
34	0,00	0,00	0	0	0	0	0	0	0	0	0	0	0	0
35	0,00	0,00	0	0	0	0	0	0	0	0	0	0	0	0
SUM	8,00	0,00	21663	0	21663	540	0	3964	1905	6287	1565	0	7402	
NPV	4,73	0,00	12808	0	12808	319	0	2189	992	5177	1176	0	2955	
NPV	5,20	0,00	14089	0	14089	351	0	2408	1092	4215	1293	0	4730	

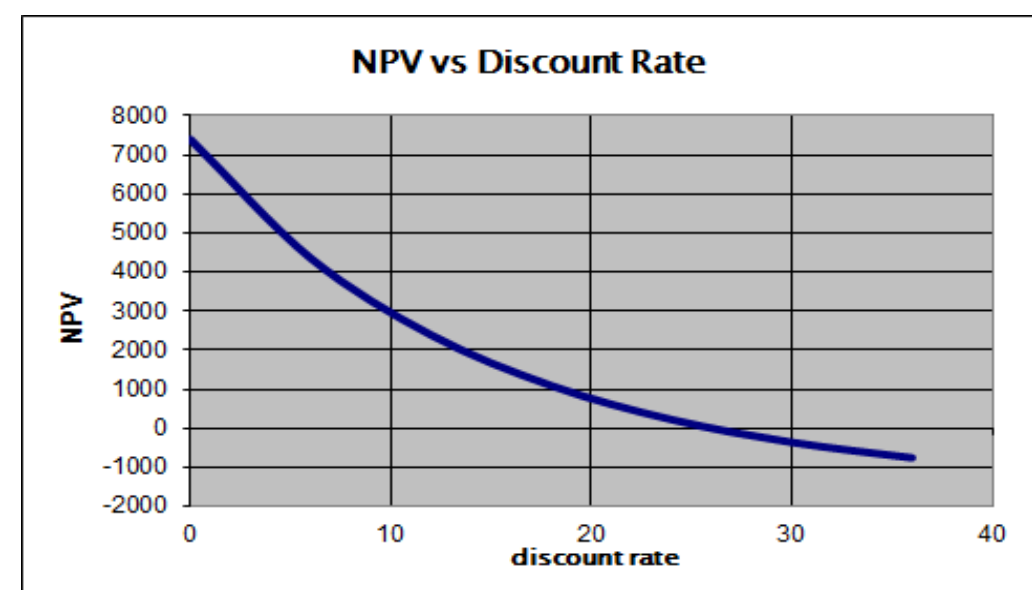
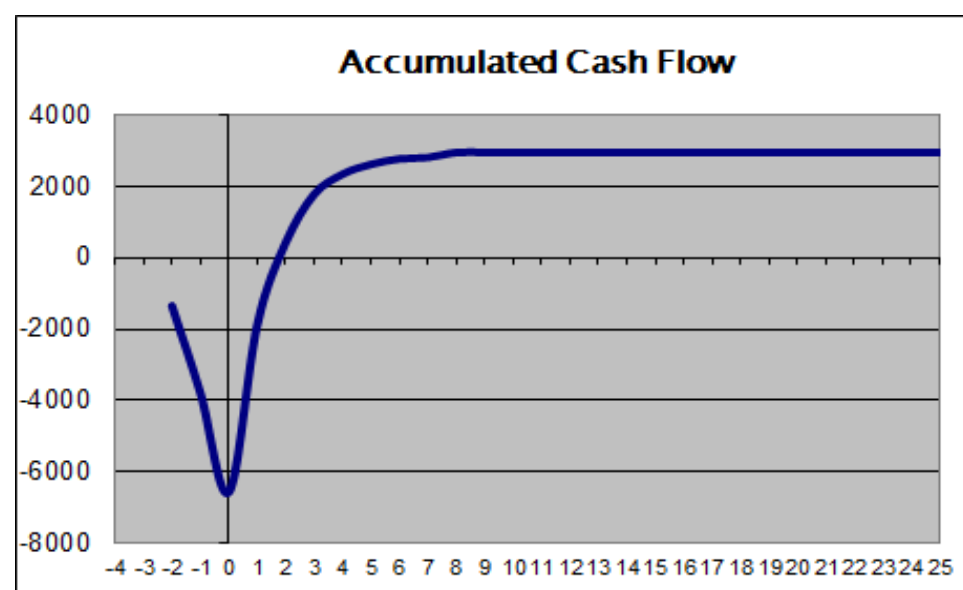
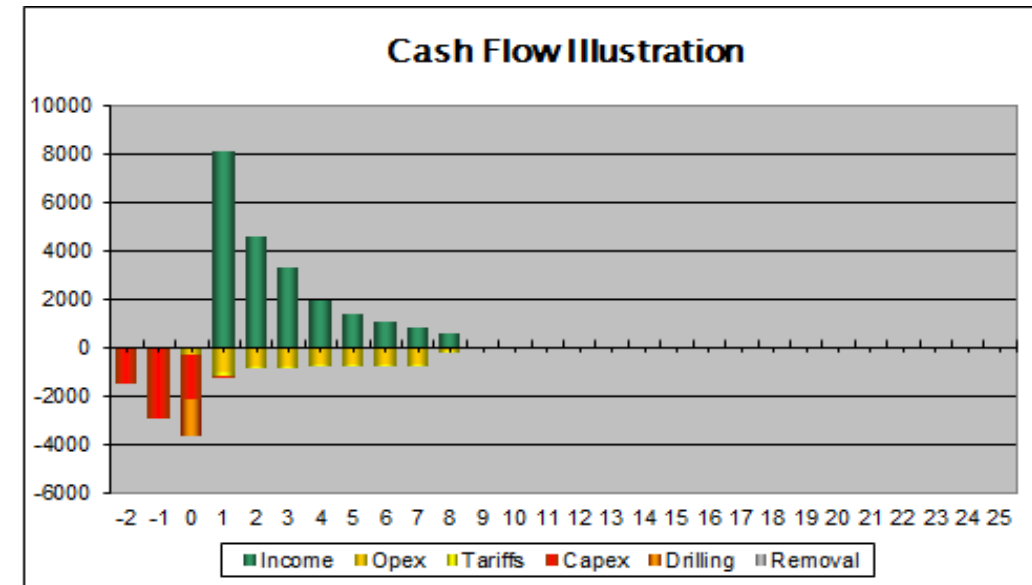
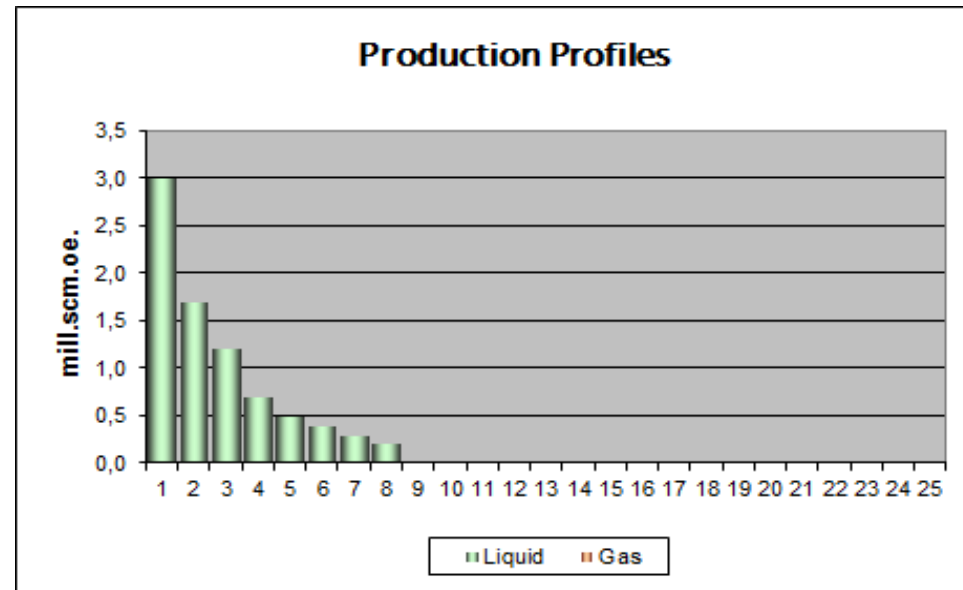
NPV REPORT

Tesla

Cost year: 2015

Currency: NOK

Region: North Sea South



NPV REPORT

Tesla

Cost year: 2015

Currency: NOK

Region: North Sea South

Lease rate for production and storage units		
Capital cost of leased unit:		1996 mill.NOK
Contractor's interest rate (base unit)		8 percent
Contractor's interest rate (special equipment)		10 percent
Contract duration (equal field life)		8 years
Lease rate first year		139091 USD/day
Lease rate base unit		69742 USD/day
Sum of lease costs		1905 mill.NOK
NPV of lease costs		992 mill.NOK
NPV of lease costs; year 3 ref		1321 mill.NOK
Capital cost of equipment to be leased:		1996 mill.NOK
Capital cost of base unit		1500 mill.NOK
Capital cost of special equipment		496 mill.NOK
Economical life of base unit		20 years
Contract duration (special equipment)		8 years
Interest rate for base unit		8,0 percent
Interest rate for special equipment		10,0 percent
Lease rate for base unit	152,7 mill.NOK	69742 USD/d
Lease rate for special equipment	93,1 mill.NOK	42489 USD/d
Leased Storage Tanker included?		Yes
Leased Production Unit included?		Yes
Leasing of Storage Tanker or Production Unit		
Production unit - base unit	23,9 percent	1505 mill.NOK
Production unit - special equipment	76,1 percent	4782 mill.NOK
Storage tanker - base unit	75,1 percent	1500 mill.NOK
Storage tanker - special equipment	24,9 percent	496 mill.NOK