



SNC • LAVALIN

Appendix 6 Cost Estimate Detail

CLASS IV ESTIMATE (CAPACITY and/or EQUIPMENT FACTORED) + / - 40%

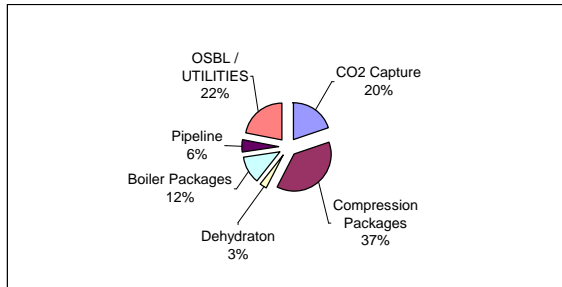
TOTAL SUMMARY with COMMON

CAPITAL COST ELEMENT BASIS	Basis	Base SHELL	Case #2 SHELL	Case #3 SHELL	Case #4 SHELL	Base PETROCAN	Case #2 PETROCAN	Case #3 PETROCAN	Case #4 PETROCAN	Base NWU	Case #2 NWU	Case #3 NWU	Case #4 NWU	Base COMMON Delivery Area	Case #2 COMMON Delivery Area	Case #3 COMMON Delivery Area	Case #4 COMMON Delivery Area	
		USD	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD
CO2 Capture	24%	\$ 49,203,000	\$ 49,203,000	\$ 49,203,000	\$ 11,216,000	\$ 36,336,000	\$ 36,336,000	\$ 36,336,000	\$ 7,144,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Compression Packages	25%	\$ 53,027,000	CAPITAL	\$ 52,386,000	\$ -	\$ 32,976,000	\$ 23,490,000	\$ 32,100,000	\$ -	\$ 75,850,000	\$ 75,850,000	\$ 75,850,000	\$ 75,850,000	\$ -	\$ -	\$ -	\$ -	\$ -
Dehydraton	4%	\$ 7,850,000	\$ -	\$ 7,850,000	\$ -	\$ 5,610,000	\$ -	\$ 5,610,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Boiler Packages	15%	\$ 31,351,000	\$ 24,789,000	\$ 27,341,000	\$ -	\$ 20,014,000	\$ 20,014,000	\$ 20,014,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Pipeline	10%	\$ 21,925,000	\$ 22,813,000	\$ 21,925,000	\$ 33,120,000	\$ 1,054,000	\$ 1,125,000	\$ 1,054,000	\$ 3,242,000	\$ 1,054,000	\$ 1,054,000	\$ 1,054,000	\$ 1,054,000	\$ -	\$ -	\$ -	\$ -	\$ -
TIC TOTAL		\$ 163,356,000	\$ 96,805,000	\$ 158,705,000	\$ 44,336,000	\$ 95,990,000	\$ 80,965,000	\$ 95,114,000	\$ 10,386,000	\$ 76,904,000	\$ 76,904,000	\$ 76,904,000	\$ 76,904,000	\$ 71,000	\$ 63,439,000	\$ 117,175,000	\$ 164,865,000	
OSBL / UTILITIES	28%	\$ 45,740,000	\$ 27,110,000	\$ 44,440,000	\$ 12,410,000	\$ 26,880,000	\$ 22,670,000	\$ 26,630,000	\$ 2,910,000	\$ 21,530,000	\$ 21,530,000	\$ 21,530,000	\$ 21,530,000	\$ 20,000	\$ 17,760,000	\$ 32,810,000	\$ 46,160,000	
ESTIMATED TOTAL		\$ 209,100,000	\$ 123,920,000	\$ 203,150,000	\$ 56,750,000	\$ 122,870,000	\$ 103,640,000	\$ 121,740,000	\$ 13,300,000	\$ 98,430,000	\$ 98,430,000	\$ 98,430,000	\$ 98,430,000	\$ 90,000	\$ 81,200,000	\$ 149,990,000	\$ 211,030,000	

CO2 Capture	\$ 85,539,000
Compression Packages	\$ 161,853,000
Dehydraton	\$ 13,460,000
Boiler Packages	\$ 51,365,000
Pipeline	\$ 24,033,000
OSBL / UTILITIES	\$ 94,170,000

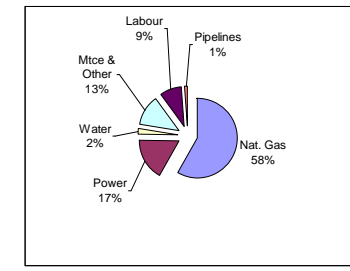
	Base	Case #2	Case #3	Case #4
SHELL	\$ 209,100,000	\$ 123,920,000	\$ 203,150,000	\$ 56,750,000
PETROCAN	\$ 122,870,000	\$ 103,640,000	\$ 121,740,000	\$ 13,300,000
NWU	\$ 98,430,000	\$ 98,430,000	\$ 98,430,000	\$ 98,430,000
COMM Delv. Pt.	\$ 90,000	\$ 81,200,000	\$ 149,990,000	\$ 211,030,000
CASE TOTAL	\$ 430,490,000	\$ 407,190,000	\$ 573,310,000	\$ 379,510,000

0.00% -5.41% 33.18% -11.84%



OPEX Calculations		NWU	SHELL/1	PETROCAN/1	COMMON/1	SHELL/2	PETROCAN/2	COMMON/2	SHELL/3	PETROCAN/3	COMMON/3	SHELL/4	PETROCAN/4	COMMON/4	AGGREGATE #1	AGGREGATE/2	AGGREGATE/3	AGGREGATE/4	
natural gas	MSCF/Y	0	5,476,383	2,424,612	0	4,685,683	2,054,019	0	5,464,380	2,400,606	0	0	0	7,872,488	7,900,995	6,739,702	7,864,986	7,872,488	
power	MWH/Y	192,572	9,525	4,639	0	8,761	4,206	154,955	9,364	4,487	14,564	31,278	9,068	2,362	206,737	360,494	220,987	235,270	
fresh demin water	m ³ /Y	0	70,017	31,100	0	69,677	31,440	0	69,677	31,440	0	69,677	31,440	0	101,117	101,117	101,117	101,117	
caustic	ty	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
TEG	ty	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Amine	kg/y	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Limestone	ty	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Gypsum	ty	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
gas cost \$	/MCF	\$7.00	\$0	\$16,972,286	\$0	\$32,799,784	\$14,378,131	\$0	\$38,250,660	\$16,804,244	\$0	\$0	\$0	\$55,107,418	\$5,306,968	\$47,177,915	\$5,054,904	\$5,107,418	
power cost	/MWH	\$80.00	\$15,405,763	\$762,029	\$0	\$700,849	\$336,489	\$12,396,395	\$749,113	\$358,922	\$1,165,136	\$2,502,255	\$724,641	\$188,978	16,538,950	28,839,497	17,678,934	18,821,638	
water cost	/M3	\$20.00	\$0	\$621,995	\$0	\$1,393,541	\$628,793	\$0	\$1,393,541	\$628,793	\$0	\$1,393,541	\$628,793	\$0	2,022,334	2,022,334	2,022,334	2,022,334	
caustic cost	\$/T	\$300.00	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
TEG cost	\$/T	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Amine cost	\$/kg	\$6.00	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
total chemicals cost	\$/Y	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
other variable cost	% of plant capex	3%	\$2,912,640	\$5,430,950	\$3,645,542	\$2,726	\$4,338,086	\$3,065,856	\$2,436,058	\$5,252,352	\$3,611,904	\$4,520,256	\$430,694	\$274,330	\$6,330,816	11,991,859	12,752,640	16,297,152	9,948,480
subtotal			\$18,318,403	\$45,928,000	\$21,610,982	\$2,726	\$39,232,260	\$18,409,269	\$14,832,453	\$45,645,666	\$21,403,863	\$5,685,392	\$4,326,491	\$1,627,764	\$61,627,211	90,792,385	91,053,324	85,899,869	
manpower add-in	% of subtotal	10%	\$1,831,840	\$4,592,800	\$2,161,098	\$273	\$3,923,226	\$1,840,927	\$1,483,245	\$4,564,567	\$2,140,386	\$568,539	\$432,649	\$162,776	\$6,162,721	8,586,011	9,079,239	9,105,332	8,589,987
OPEX	\$/Y	\$20,150,244	\$50,520,799	\$23,772,080	\$2,999	\$43,155,486	\$20,250,196	\$16,315,698	\$50,210,233	\$23,544,249	\$6,253,931	\$4,759,140	\$1,790,540	\$67,789,933	94,446,122	99,871,624	100,158,657	94,489,856	
OPEX Pipeline	% of OPEX	3%	\$40,474	\$84,192	\$40,474	\$0	\$87,602	\$4,320	\$84,192	\$4,320	\$0	\$1,271,808	\$124,463	\$0	\$92,867	\$92,867	\$92,867	\$92,867	
manpower add-in	% of subtotal	10%	\$4,047	\$8,419	\$4,047	\$0	\$8,760	\$432	\$8,419	\$432	\$0	\$12,449	\$1,245	\$0	\$92,867	\$92,867	\$92,867	\$92,867	
total Pipeline OPEX			\$44,521	\$92,612	\$44,521	\$0	\$96,362	\$4,752	\$92,612	\$4,752	\$0	\$1,398,989	\$136,942	\$0	1,015,154	1,055,662	1,015,154	1,580,452	
Service factor assumption	97.00%																		
Hours per day	24																		
Days Per year	365																		
Factor Hours to Annual	8497.2																		
Nat Gas tonnes per hour	26.5	BFD	13.6	BFD	6	BFD	11.7	BFD	5.1	BFD	0	BFD	13.6	BFD	6	BFD	20	BFD	
nm3/hour	35463	BFD	18,250	BFD	8,080	BFD	15,615	BFD	6,845	BFD	0	BFD	18,210	BFD	8,000	BFD	26235	BFD	
purchase power	MWH/H	P1 Util	22.663	P1 Util	1.121	P1 Util	0.546	0.000	1.031	P1 Util	0.495	18.236	P1 Util	1.102	0.528	1.714	3.681	1.066	
50% caustic	ty	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
TEG t/h	ty	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Amine kg	kg/h	SLI calc	0	SLI calc	0	SLI calc	0	0	0	SLI calc	0	0	SLI calc	0	0	0	0	0	
Water Makeup	ty	0	20	8.24	5	3.66	BFD	8.2	BFD	3.7	BFD	8.2	BFD	3.7	0	12	12	12	12
Natural Gas Calculations																			
scf/hr	1,252,364																		
conversion scf/tonne	47259																		
mcf/tonne	47,2590																		
scf/m3	35,3147																		
scfd	30,056,737	0	15,467,824	6,848,220	0	13,234,524	5,801,493	0	15,433,922	6,780,416	0	0	0	22,235,527	22,316,044	19,036,018	22,214,338	22,235,527	
CO2 MCF/Tonne	19.07																		
conversion nm3/hr to SCFD	847.5520013																		
amine consumption	GT sources	0 assumed zero																	
based on O2 content	Boller sources	0 assumed zero																	
Acid gas sources	0 assumed zero																		
cost/Amine Cost	\$/kg	\$6.00	guess for 2007																

OPEX Breakdowns for graph	3,366,319	3,366,319	3,366,319	3,366,319
CO2 to Pipeline				
Nat. Gas	\$55,306,968	\$47,177,915	\$55,054,904	\$55,107,418
Power	\$16,538,950	\$28,839,497	\$17,678,934	\$18,821,638
Water	\$2,022,334	\$2,022,334	\$2,022,334	\$2,022,334
Mtce & Other	\$11,991,859	\$12,752,640	\$16,297,152	\$9,948,480
Labour	\$8,586,011	\$9,079,239	\$9,105,332	\$8,589,987
Pipelines	\$1,015,154	\$1,055,662	\$1,015,154	\$1,580,452
Total	\$95,461,276	\$100,927,296	\$101,173,811	\$96,070,308
Unit OPEX	41.15	43.56	47.11	39.81
TIC	430.49	457.08	574.00	379.51
CASH OPEX as % of TIC	22.17%	22.08%	17.63%	25.31%
Overall OPEX as % of TIC	32.17%	32.08%	27.63%	35.31%



PER TONNE**NET OF CO₂ Credit****\$0.00 per tonne**

Case	CO ₂ Source	CO ₂ volume Tonnes per year	Net CO ₂ After Parasitic Deducted	Capital Cost \$ millions plant only	Capital Cost \$ millions pipelines	Nominal CO ₂ Cost, \$/Tonne FOB Plant	Incl Transport via allocated pipeline
1	NWU	1,233,000	1,040,000	97.09	1.35	\$24.21	\$24.35
1	SHELL/1	1,476,000	1,125,000	181.03	28.06	\$46.47	\$49.00
1	PETROCAN/1	655,000	500,000	121.52	1.35	\$54.76	\$55.04
1	COMMON/1	0	0	0.09		\$0.004	\$0.004
1	AGGREGATE /1	3,366,000	2,666,000	399.73	30.76		\$41.15
2	NWU	1,233,000	1,040,000	97.09	1.35	\$24.21	\$24.35
2	SHELL/2	1,476,000	1,176,000	144.60	29.20	\$39.01	\$41.64
2	PETROCAN/2	655,000	524,000	102.20	1.44	\$46.45	\$46.74
2	COMMON/2	0	-154,000	81.20		\$7.26	\$7.26
2	AGGREGATE/2	3,366,000	2,586,000	425.09	31.99		\$43.56
3	NWU	1,233,000	1,040,000	97.09	1.35	\$24.21	\$24.35
3	SHELL/3	1,476,000	1,467,000	175.08	28.06	\$45.85	\$48.38
3	PETROCAN/3	655,000	501,000	120.40	1.35	\$54.25	\$54.52
3	COMMON/3	0	-14,000	150.68		\$6.33	\$6.33
3	AGGREGATE/3	3,366,000	2,995,000	543.24	30.76		\$47.11
4	NWU	1,233,000	1,040,000	97.09	1.35	\$24.21	\$24.35
4	SHELL/4	1,476,000	1,476,000	14.36	42.39	\$4.19	\$8.01
4	PETROCAN/4	655,000	655,000	9.14	4.15	\$4.12	\$4.96
4	COMMON/4	0	-491,000	211.03		\$26.41	\$26.41
4	AGGREGATE/4	3,366,000	2,682,000	331.62	47.89		\$39.81

PER MCF **NET OF CO₂ Credit** **\$0.00** **per MCF**

Case	CO ₂ Source	CO ₂ volume MCF per year	Net CO ₂ After Parasitic Deducted	Capital Cost \$ millions plant only	Capital Cost \$ millions pipelines	Nominal CO ₂ Cost, \$/MCF FOB Plant	Incl Transport via allocated pipeline
1	NWU	23,513,310	1,040,000	97.09	1.35	\$1.27	\$1.41
1	SHELL/1	28,147,320	1,125,000	181.03	28.06	\$2.44	\$4.96
1	PETROCAN/1	655,000	500,000	121.52	1.35	\$2.87	\$3.15
1	COMMON/1		0	0.09		\$0.00	
1	AGGREGATE /1	3,366,000	2,666,000	399.73	30.76	\$2.09	\$2.16
2	NWU	1,233,000	1,040,000	97.09	1.35	\$1.27	\$1.41
2	SHELL/2	1,476,000	1,176,000	144.60	29.20	\$2.05	\$4.68
2	PETROCAN/2	655,000	524,000	102.20	1.44	\$2.44	\$2.73
2	COMMON/2	0	-154,000	81.20		\$0.38	\$0.38
2	AGGREGATE/2	3,366,000	2,586,000	425.09	31.99	\$2.22	\$2.28
3	NWU	1,233,000	1,040,000	97.09	1.35	\$1.27	\$1.41
3	SHELL/3	1,476,000	1,467,000	175.08	28.06	\$2.40	\$4.93
3	PETROCAN/3	655,000	501,000	120.40	1.35	\$2.84	\$2.84
3	COMMON/3	0	-14,000	150.68		\$0.33	\$0.33
3	AGGREGATE/3	3,366,000	2,995,000	543.24	30.76	\$2.41	\$2.47
4	NWU	1,233,000	1,040,000	97.09	1.35	\$1.27	\$1.41
4	SHELL/4	1,233,000	1,476,000	14.35648	42.39	\$0.22	\$0.37
4	PETROCAN/4	1,476,000	655,000	9.14432	4.15	\$0.22	\$2.74
4	COMMON/4	655,000	-491,000	211.0272		\$1.38	\$1.68
4	AGGREGATE/4	3,366,000	2,682,000	331.62	47.89	\$1.99	\$2.09