



**PT Badak NGL**  
A World Class Energy Company

No. 159/BJ00/2012-962

Jakarta, 9 November 2012

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Subject: Extraordinary Meeting of the Board of Commissioners and Directors of PT Badak NGL

Dear All,

Due to the postponement of EKGMC Meeting to the end of November 2012, we would like to inform you that the Extraordinary Meeting of Board of Commissioners and Directors of PT Badak NGL that was scheduled on November 14, 2012 at 01:30 PM will be rescheduled to:

Day/Date : Wednesday, 5 December 2012  
Place : PT Badak NGL Conference Room, Wisma Nusantara 9<sup>th</sup> Floor  
Jl. M.H. Thamrin No. 59, Jakarta 10350  
Time : 08:30 AM  
Agenda : - Proposed 2013 Original Budget  
- Proposed 2013 BOD KPI  
- Five Years Business Plan 2013-2017

We are hoping for your understanding. Thank you.

Very truly yours,

A handwritten signature in black ink, appearing to read "Gusrizal".

Gusrizal  
President Commissioner

CC: 1. President Director & Chief Executive Officer PT Badak NGL  
2. Director & Chief Operating Officer PT Badak NGL  
3. VP Subsidiary & Joint Venture Management, PT PERTAMINA (Persero)

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**PROPOSED ORIGINAL BUDGET 2013  
ALTERNATIVE I**

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**PROPOSED ORIGINAL BUDGET 2013**  
**BUDGET SUMMARY**  
(In Thousands of US Dollars)

Total Cash Expenditures for the Original Budget 2013 to be funded from sales revenues before VAT on Gas Processing and Cost Impact on LTI are expected to be \$222,428 which is \$9,893 or 4.7% higher than the Revised Budget 2012 and after VAT on Gas Processing and Cost Impact on LTI are expected to be \$252,573 which is \$20,801 or 9.0% higher than the Revised Budget 2012.

Total Operating Expenses are expected to be \$205,617 which shows an increase of \$13,358 or 6.9% compared with the Revised Budget 2012. This result in an Operating Unit Cost figure without Retirement Cost of 30.68 cents per MMBTU which is 7.58 cents or 32.8% higher than that of the Revised Budget and with Retirement Cost of 37.53 cents per MMBTU which is 9.02 cents or 31.6% higher than that of the Revised Budget. The number of LNG shipments are estimated to be 171.10 standard cargoes with a total MMMBTU'S produced of 547,865 which is 126,598 or 18.8% lower than the Revised Budget.

The increase in Operating Expenses results from higher expenses for Employee Related \$1,385, Materials & Supplies \$697, Maintenance \$4,887, Services \$2,548, Contract Services \$770, Other Expenses \$4,009 and Recoveries & Allocations \$923. These were partly offset by lower cost for Business Related \$15.

Tier I costs are expected to be \$3,646 which is higher than the Revised Budget 2012 by \$524. Tier II cost are expected to be \$5,574 which is higher than the Revised Budget 2012 by \$3,184.

Working Capital changes are expected to decrease by \$383 resulting in a credit variance due to Other Accounts \$1,113. These decrease will be partly offset by increase in Inventory \$730.

The Owners Cost category is expected to be \$465 which is decreased by \$235 from Revised Budget 2012.

Tier III Capital Expenditures are expected to be \$7,791 which is decreased by \$6,555 from Revised Budget 2012.

**PROPOSED ORIGINAL BUDGET 2013**  
**SUMMARY OF SIGNIFICANT CHANGES**  
(In Thousands of US Dollars)

**Significant Changes in Expenditures Compared with Revised Budget 2012 :****A. Operating Expenses**

- Increases in Employee Related	1,385
- Decreases in Business Related	(15)
- Increases in Materials & Supplies	697
- Increases in Maintenance	4,887
- Increases in Services	2,548
- Increases in Contract Services	3,794
- Increase in Other Expenses	985
- Increase in Recoveries & Allocation	<u>(923)</u>
	13,358

**B. Capital Expenditures**

- Increases in Tier I Expenditures	524
- Increases in Tier II Expenditures	<u>3,184</u>
	3,708

**C. Working Capital Changes**

- Increases in Inventory & MIT	730
- Decreases in Other Accounts	<u>(1,113)</u>
	(383)

**D. Tier III Capital**

- Decreases in Tier III Expenditures	<u>(6,555)</u>
	(6,555)

**E. Owners Cost**

- Decreases in Owners Cost	<u>(235)</u>
	(235)

**Total Cash Expenditures Changes**

Cost Impact on One LTI	7,184
VAT on Gas Processing	<u>3,724</u>

**Total Cash Expend. After VAT on Gas Processing**

	20,801
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**PROPOSED ORIGINAL BUDGET 2013**  
**WORK PROGRAM ASSUMPTIONS**  
(In Thousands of US Dollars)

**A. Operational Assumptions**

1. Mode of operation in 2013 is 7 Trains operation (4 Trains Running and 3 Trains normal Idle) and full LPG extraction. Thermal Efficiency Factor is targeted to be 87.85%.

Based on the average Yearly Gas Delivery Forecast of 1,575 MMScfd (ADP 2013 rev-Nov):

- LNG production is 21.388 million m<sup>3</sup> or 171.10 standard cargoes or 9.708 million ton or 503,336 MMMBtu.
- LPG Propane (C3) production is 0.345 million m<sup>3</sup> or 0.20 million ton or 9,550 MMMBtu.
- LPG Butane (C4) production is 0.326 million m<sup>3</sup> or 0.19 million ton or 9,107 MMMBtu.
- Condensate production is 0.818 million m<sup>3</sup> or 0.56 million ton or 5.147 million BOE (Barrel Oil Equivalent) or 25,872 MMMBtu.

Total MMMBtu of Gas Delivery equals to **624,627** while the total MMMBtu production equals to **547,865**.

2. 1 Train LTI (Long Term Idle) that was approved by BOC on 19 July 2012.

**B. Administration Assumptions**

1. National employee manning levels are planned to be 1,116 at the beginning of 2013 and 1,126 at the end of 2013 in the Original Budget 2013 compared with 1,157 at the beginning and 1,116 at the end of 2012 in the Revised Budget.
2. Regional Minimum Basic Wages (UMSK) is adjusted to UMSK Migas Bontang.
3. One month of Lebaran bonus and 3 months of performance contract bonus for 2012, are budgeted for national employees (prediction based on achievement KPI YTD July 2012).

**C. Other Assumptions**

1. Expenses which will be spent in Rupiah have been converted to US Dollars by using an exchange rate of Rp.9.300 versus Rp.9.000 in the Revised Budget 2012.
2. The plant property insurance policy was renewed effectively on 1 June 2012 based on "6 Trains concept" and the coverage will be maintained on this basis when this insurance is renewed on 1 June 2013.
3. The proposed Original Budget 2013 has considered the work for Reliability Improvement Programs as described in the 2011-2014 Road Map endorsed by all parties.
4. Overhaul Dock I Proposed in Original Budget 2013
5. Tug Boat Rental Proposed in Original Budget 2013 (N+1 = 6)
6. Value Added Tax (VAT) and Penalty on Pipeline Operation & Maintenance Agreement (POMA) has been included in this Proposed Original Budget 2013 in the amount of \$3M as presented by VICO during the Last Producers Meeting on 20 November 2012. This POMA VAT is treated in OPEX, under Pipeline Maintenance in Contract Services categories.

**PROPOSED ORIGINAL BUDGET 2013**

**PROPOSED ORIGINAL BUDGET 2013**  
**SUMMARY OF EXPENDITURES & SOURCE OF FUNDS**  
(In Thousands of US Dollars )

	Original Budget 2013 Rp.9,300	Revised Budget 2012 Rp.9,000	Variance		Actual Cost 2011 Rp.8,742	Actual Cost 2010 Rp.9,075
			Over (Under)	%		
<b>CASH EXPENDITURES :</b>						
Operating Expenses W/O Retirement Costs	168,065	155,782	12,283	7.9	148,613	145,583
Retirement Costs	37,552	36,477	1,075	2.9	33,400	30,622
<b>Total Opex With Retirement Costs</b>	<b>205,617</b>	<b>192,259</b>	<b>13,358</b>	<b>6.9</b>	<b>182,013</b>	<b>176,205</b>
<b>Capital Expenditures</b>						
Tier I	3,646	3,122	524	16.8	1,591	1,687
Tier II	5,574	2,390	3,184	133.2	3,026	3,834
<b>Total Capital Expenditures</b>	<b>9,220</b>	<b>5,512</b>	<b>3,708</b>	<b>67.3</b>	<b>4,617</b>	<b>5,521</b>
<b>Working Capital Changes</b>						
Inventory	999	269	730	271.4	(3,156)	5,266
Other Accounts	(1,664)	(551)	(1,113)	202.0	(1,795)	(6,219)
<b>Total Working Capital Changes</b>	<b>(665)</b>	<b>(282)</b>	<b>(383)</b>	<b>135.8</b>	<b>(4,951)</b>	<b>(953)</b>
<b>Total Operating Expenditures</b>	<b>214,172</b>	<b>197,489</b>	<b>16,683</b>	<b>8.4</b>	<b>181,679</b>	<b>180,773</b>
Tier III Capital Expenditures	7,791	14,346	(6,555)	(45.7)	3,652	13,625
Owners Cost Expenditures	465	700	(235)	(33.6)	19	(626)
	<b>8,256</b>	<b>15,046</b>	<b>(6,790)</b>	<b>(45.1)</b>	<b>19</b>	<b>(626)</b>
<b>Total Cash Expend.Before YPVDP-GHS</b>	<b>222,428</b>	<b>212,535</b>	<b>9,893</b>	<b>4.7</b>	<b>181,698</b>	<b>180,147</b>
YPVDP Golden Hand shake Program	-	-	-	-	-	12,092
Cost Impact on LTI	7,184	-	7,184	100.0	-	-
<b>Total Cash Expend.After YPVDP-GHS</b>	<b>229,612</b>	<b>212,535</b>	<b>17,077</b>	<b>8.0</b>	<b>181,698</b>	<b>192,239</b>
VAT on Gas Processing	22,961	19,237	3,724	19.4	-	-
<b>Total Cash Expend.After VAT on Gas Processing</b>	<b>252,573</b>	<b>231,772</b>	<b>20,801</b>	<b>9.0</b>	<b>181,698</b>	<b>192,239</b>
Total Operating Expenses / MMBTU Without Retirement Costs	30.68c	23.1c	7.58c	32.8	18.27c	15.79c
Total Operating Expenses / MMBTU With Retirement Costs	37.53c	28.51c	9.02c	31.6	22.37c	19.11c
Total MMMBTU (Million) (estimated to be)	547.87	674.46	(126.6)	(18.8)	813.62	922.02
Standard Cargoes (estimated to be)	171.10	211.12	(40.02)	(19.0)	252.93	288.88

**PROPOSED ORIGINAL BUDGET 2013**

**PROPOSED ORIGINAL BUDGET 2013  
OPERATING EXPENSES  
(Including Retirement Costs)  
( In Thousands of US Dollars )**

	Original Budget 2013 Rp.9,300	Revised Budget 2012 Rp.9,000	Variance Over (Under)	Variance %	Actual Costs 2011 Rp.8,742	Actual Costs 2010 Rp.9,076
<b>Employee Related</b>						
Empl.Compensation - Nat'l	47,036	45,406	1,630	3.6	41,453	39,062
Empl.Benefits - National	18,276	18,404	(128)	(0.7)	16,731	15,935
	65,312	63,810	1,502	2.4	58,184	54,997
Terminations & Severance Payment	22,562	22,817	(255)	(1.1)	20,824	19,926
Employee Ralated Tax	18,656	18,518	138	0.7	17,001	15,072
	106,530	105,145	1,385	1.3	96,009	89,995
<b>Business Related</b>						
Company Business	1,967	1,927	40	2.1	2,666	2,465
Medical	5,868	5,866	2	0.0	4,389	2,761
Training	2,193	2,250	(57)	(2.5)	2,373	1,924
	10,028	10,043	(15)	(0.1)	9,428	7,150
<b>Materials &amp; Supplies</b>						
Catalysts & Chemicals	2,666	2,341	325	13.9	3,114	2,688
Operating Supplies	5,232	4,860	372	7.7	5,759	5,174
Fuels, Lubes & Greases	2,031	2,031	-	0.0	1,894	1,630
	9,929	9,232	697	7.5	10,767	9,492
<b>Maintenance</b>						
Plant Maintenance	29,962	25,040	4,922	19.7	25,576	31,135
Community Maintenance	4,833	4,803	30	0.6	4,352	4,959
Other Maintenance	526	591	(65)	(11.0)	434	432
	35,321	30,434	4,887	16.1	30,362	36,526
<b>Services</b>						
Equip.Rntl/Leases/Charter	8,326	5,774	2,552	44.2	5,067	4,338
Communications	607	611	(4)	(0.7)	454	505
	8,933	6,385	2,548	39.9	5,521	4,843
<b>Contract Services</b>						
Computer Services	1,383	770	613	79.6	364	457
Catering	1,346	1,382	(36)	(2.6)	1,477	1,615
Pipeline Maintenance	7,447	4,423	3,024	68.4	3,305	3,276
Service Orders	2,834	3,084	(250)	(8.1)	1,131	1,771
General Contract Services	14,609	14,166	443	3.1	15,988	13,905
	27,619	23,825	3,794	15.9	22,265	21,024
<b>Other Expenses</b>						
Community Development	1,251	1,284	(33)	(2.6)	1,129	972
Foundation Subsidies	1,329	1,343	(14)	(1.0)	1,442	3,012
Public Relations	1,251	1,213	38	3.1	1,006	525
Insurance	2,535	2,349	186	7.9	2,136	2,214
Taxes	2,372	2,508	(136)	(5.4)	1,439	1,958
Miscellaneous	1,890	946	944	99.8	4,196	821
	10,628	9,643	985	10.2	11,348	9,502
<b>Recov. &amp; Allocations</b>						
Recoveries						
- Regular	(1,117)	(1,024)	(93)	9.1	(1,926)	(1,798)
- Non Regular	(1,299)	(757)	(542)	71.6	(1,388)	(125)
Allocations	(955)	(667)	(288)	43.2	(373)	(404)
	(3,371)	(2,448)	(923)	37.7	(3,687)	(2,327)
<b>Total Operating Expenses</b>	<b>205,617</b>	<b>192,259</b>	<b>13,358</b>	<b>6.9</b>	<b>182,013</b>	<b>176,205</b>

**PROPOSED ORIGINAL BUDGET 2013**

**PROPOSED ORIGINAL BUDGET 2013**

**OPERATING EXPENSES**

**Excluding Retirement Costs**

( In Thousands of US Dollars )

	<b>Original Budget 2013 Rp.9,300</b>	<b>Revised Budget 2012 Rp.9,000</b>	<b>Variance Over (Under)</b>	<b>Variance % -----</b>	<b>Actual Costs 2011 Rp.8,742</b>	<b>Actual Costs 2010 Rp.9,075</b>
<b>Employee Related</b>						
Empl.Compensation - Nat'l	42,532	41,660	872	2.1	38,393	36,040
Empl.Benefits - National	17,107	17,125	(18)	(0.1)	15,127	14,774
	59,639	58,785	854	1.5	53,520	50,814
Employee Ralated Tax	11,456	11,458	(2)	(0.0)	10,467	9,634
	71,095	70,243	852	1.2	63,987	60,448
<b>Business Related</b>						
Company Business	1,967	1,927	40	2.1	2,666	2,465
Medical	3,751	4,291	(540)	(12.6)	3,011	1,686
Training	2,193	2,250	(57)	(2.5)	2,373	1,924
	7,911	8,468	(557)	(6.6)	8,050	6,075
<b>Materials &amp; Supplies</b>						
Catalysts & Chemicals	2,666	2,341	325	13.9	3,114	2,688
Operating Supplies	5,232	4,860	372	7.7	5,759	5,174
Fuels, Lubes & Greases	2,031	2,031	0	0.0	1,894	1,630
	9,929	9,232	697	7.5	10,767	9,492
<b>Maintenance</b>						
Plant Maintenance	29,962	25,040	4,922	19.7	25,576	31,135
Community Maintenance	4,833	4,803	30	0.6	4,352	4,959
Other Maintenance	526	591	(65)	(11.0)	434	432
	35,321	30,434	4,887	16.1	30,362	36,526
<b>Services</b>						
Equip.Rntl/Leases/Charter	8,326	5,774	2,552	44.2	5,067	4,338
Communications	607	611	(4)	(0.7)	454	505
	8,933	6,385	2,548	39.9	5,521	4,843
<b>Contract Services</b>						
Computer Services	1,383	770	613	79.6	364	457
Catering	1,346	1,382	(36)	(2.6)	1,477	1,615
Pipeline Maintenance	7,447	4,423	3,024	68.4	3,305	3,276
Service Orders	2,834	3,084	(250)	(8.1)	1,131	1,771
General Contract Services	14,609	14,166	443	3.1	15,988	13,905
	27,619	23,825	3,794	15.9	22,265	21,024
<b>Other Expenses</b>						
Community Development	1,251	1,284	(33)	(2.6)	1,129	972
Foundation Subsidies	1,329	1,343	(14)	(1.0)	1,442	3,012
Public Relations	1,251	1,213	38	3.1	1,006	525
Insurance	2,535	2,349	186	7.9	2,136	2,214
Taxes	2,372	2,508	(136)	(5.4)	1,439	1,958
Miscellaneous	1,890	946	944	99.8	4,196	821
	10,628	9,643	985	10.2	11,348	9,502
<b>Recov. &amp; Allocations</b>						
Recoveries						
- Regular	(1,117)	(1,024)	(93)	9.1	(1,926)	(1,798)
- Non Regular	(1,299)	(757)	(542)	71.6	(1,388)	(125)
Allocations	(955)	(667)	(288)	43.2	(373)	(404)
	(3,371)	(2,448)	(923)	37.7	(3,687)	(2,327)
<b>Total Opex Excl. Retirement Costs</b>	<b>168,065</b>	<b>155,782</b>	<b>12,282</b>	<b>7.9</b>	<b>148,613</b>	<b>145,583</b>
<b>Retirement Costs</b>						
MPP - Employee Rel. Costs	5,673	5,025	648	12.9	4,665	4,183
Terminations & Severance Payment	22,562	22,817	(255)	(1.1)	20,824	19,926
Medical Care For Pension	2,117	1,575	542	34.4	1,378	1,075
	27,302	27,477	(165)	(0.6)	22,967	21,033
Retirement Costs	30,352	29,417	935	3.2	26,866	25,184
Taxes Related	7,200	7,060	140	2.0	6,534	5,438
Total Retirement Costs	37,552	36,477	1,075	2.9	33,400	30,622
<b>Total Opex Incl.Retirement Costs</b>	<b>205,617</b>	<b>192,259</b>	<b>13,358</b>	<b>6.9</b>	<b>182,013</b>	<b>176,205</b>

**PROPOSED ORIGINAL BUDGET 2013**  
**EXPLANATIONS OF OPERATING EXPENSES VARIANCES**  
(In Thousands of US Dollars)

The Proposed Operating Expenses in the Original Budget 2013 at \$205,617 shows an increase of \$13,358 (6.9%) compared with the Revised Budget 2012. The major variances in operating expenses are explained below:

**Employee Related \$106,530 – increase of \$1,385 (1.3%)**

1. Employee Compensation of \$47,036 shows an increase of \$1,630 (3.6%) mainly due to the impact from:

- An increase in the basic salary \$1,967
- An increase in overtime \$73
- An increase in Site Allowance \$92
- An increase in KPAK \$53

These increases will be partly offset by lower cost for leave allowance \$251, shift premium \$164, transportation allowance \$77 and risk allowance \$63.

2. Employee Benefits of \$18,276 shows a decrease of \$128 (0.7%) mainly due to the impact from:

- A decrease in KPI Production Bonus \$136
- A decrease in Education Allowance \$289
- A decrease in Lebaran bonus \$195
- A decrease in Reward 20<sup>th</sup> Service Award \$163
- A decrease in Tugu Mandiri Insurance \$35
- A decrease in LPG allowance \$47
- A decrease in Maintenance HOP \$74
- A decrease in Others Benefit \$178

This decrease will be partly offset by higher costs for saving plan \$47, JAMSOSTEK insurance \$176, Pension Fund \$488, Service Award \$164 and KBPR Allowance \$114

Employee Related Costs per employee as the following:

**EMPLOYEE RELATED COST PER EMPLOYEE ACTIVE  
(EXCLUDING RETIREMENT & MPP COSTS)**  
(In Thousands of US Dollars )

Description	OB2013	RB2012	Variance	
			\$	%
<b>1. Manning Active ( average in year) :</b>				
Existing Employees	1,078	1,143	(65)	(5.7)
New Hired Employees	88	-	88	100
Total Manning Active	1,166	1,143	23	2.0
<b>2. Employee Related Costs without New PHDP:</b>				
Existing Employees	58,185	58,785	(600)	(1.0)
New Hired Employees	1,454	-	1,454	100
Total Employee Related	59,639	58,785	854	1.5
<b>3. Employee Related Cost per employee:</b>				
Existing Employees	53.97	51.43	2.54	4.9
New Hired Employees	16.52	-	16.52	100
Total Employee Related per Employee (Average)	51.15	51.43	(0.28)	(0.5)

**PROPOSED ORIGINAL BUDGET 2013**

3. Termination & Severance payment based on the employee retirement due in 2013 at \$22,562 shows a decrease of \$255 (1.1%) mainly due to lower cost for termination payment \$985 and early retirement termination \$25. These were partly offset by higher cost for advance severance payment \$369 and relocation cost \$386.

The breakdown consists of:

<u>Description</u>	<u>OB</u> <u>2013</u>	<u>RB</u> <u>2012</u>	<u>Variance</u>	
			<u>\$</u>	<u>%</u>
Termination/Final Severance Pay 100% (66 vs 83 Empl)	2,446	3,431	(985)	(29)
<b>Advance Severance Payment:</b>				
90% adv at 55 years old for 78 vs 66 empl.	8,922	8,203	719	9
60% adv at 53 years old for 83 vs 89 empl.	4,868	5,559	(691)	(12)
40% adv at 50 years old for 81 VS 74 empl	4,458	4,117	341	8
Early Retirement Termination (6 vs 6 empl)	908	933	(25)	(3)
Relocation (personal effects, airfare etc.)	960	574	386	67
	<b>22,562</b>	<b>22,817</b>	<b>(255)</b>	<b>(1.1)</b>
	=====	=====	=====	=====

**Business Related \$10,028** - decrease of \$15 (0.1%)

1. Company business of \$1,967 shows an increase by \$40 (2.1%).

The breakdown of consists of:

	<u>OB</u> <u>2013</u>	<u>RB</u> <u>2012</u>	<u>Variance</u>		<u>Actual</u>	
			<u>\$</u>	<u>%</u>	<u>2011</u>	<u>2010</u>
- Domestics	1,194	1,155	39	3.4	1,217	1,685
- Overseas	763	763	-	-	648	776
- Travel accident Insurance	10	9	1	11	9	4
	<b>1,967</b>	<b>1,927</b>	<b>40</b>	<b>2.1</b>	<b>1,874</b>	<b>2,465</b>
	=====	=====	=====	=====	=====	=====

2. Medical of \$5,868 shows an increase of \$2 (0%) mainly due higher cost for additional for retirees 130 head count \$541. These were partly offset by lower cost for Capitation for PISA \$352, eye-glasses \$179 and outside medical \$8.

The breakdown consists of:

	<u>OB</u> <u>2013</u>	<u>RB</u> <u>2012</u>	<u>Variance</u>		<u>Actual</u>	<u>Actual</u>
			<u>\$</u>	<u>%</u>	<u>2011</u>	<u>2010</u>
- Capitation for PISA	3,210	3,562	(352)	(9.9)	2,027	-
- Outside Medical	330	338	(8)	(2.4)	748	1,259
- Students	-	-	-	-	98	232
- Retirees	2,116	1,575	541	34.3	1,377	1,075
- Eye Glasses	212	391	(179)	(46)	139	195
	<b>5,868</b>	<b>5,866</b>	<b>2</b>	<b>0.0</b>	<b>4,389</b>	<b>2,761</b>
	=====	=====	=====	=====	=====	=====

**PROPOSED ORIGINAL BUDGET 2013**

**Materials & Supplies \$9,929 - increase of \$697 (7.5%)**

1. Catalysts & Chemicals of \$2,666 shows a increase of \$325 (13.9%) mainly due to higher cost for Optisperse HTP-3001 \$202, Steamate Regen-3 \$83, Charcoal \$64, caustic soda \$30, others catalyst & chemical \$106 and optimeen \$7. These decreases will be partly offset by Molesieve \$69, Sulfurid Acid \$44, Optisperse OP-5547 \$41 and Calcium Hypochloride \$13.

The breakdown consist of:

	<b>OB 2013</b>	<b>RB 2012</b>	<b>Variance</b>		<b>Actual 2011</b>	<b>Actual 2010</b>
			<b>\$</b>	<b>%</b>		
Caustic Soda	256	226	30	13.3	231	251
Charcoal	88	24	64	266.7	29	27
Optisperse HTP-3001	504	302	202	66.9	627	340
Optimeen	180	173	7	4.0	207	151
Regenamine	163	80	83	103.8	168	175
MDEA	382	383	(1)	(0.3)	497	692
Molesieve	327	395	(68)	(17.2)	694	423
Lime Hydrated	53	54	(1)	(1.9)	29	52
Calsium Hypochloride	38	50	(12)	(24.0)	37	48
Sulfurid Acid	172	216	(44)	(20.4)	190	263
Opti Sperse OP-5547	17	58	(41)	(70.7)	5	10
Other Catalysts & Chemicals	486	380	106	27.9	400	256
	<b>2,666</b>	<b>2,341</b>	<b>325</b>	<b>13.9</b>	<b>3,114</b>	<b>2,688</b>
	=====	=====	=====	=====	=====	=====

2. Operating Supplies of \$5,232 shows a increase of \$372 (7.7%) mainly due to higher cost for other operating supplies \$40, Uniforms & Costumes \$60, safety related material & supply \$44, computer supplies \$37, household furniture & consumable \$35, office supplies \$20, construction material \$35, Non Consumable Household Appliances \$9, office furniture \$9, computer software \$66, plant operating material & supplies \$10 and tools \$7.

**PROPOSED ORIGINAL BUDGET 2013**

**Maintenance Expenses \$35,321 – increase of \$4,887 (16.1%)**

1. Plant Maintenance of \$29,962 shows an increase of \$4,922 (19.7%) with the Revised Budget 2012.

The breakdown is itemized as below:

ID No.	DESCRIPTION	Budget 2013	Budget 2012	Variance
<b>I ROUTINE ACTIVITIES</b>				
<b>I.1 Shutdown Activities :</b>				
I.1.1	Scheduled - Train F Shutdown (Insulation Replacement)	1,200	-	1,200
I.1.2	Scheduled - Train G Shutdown	700	-	700
I.1.3	Scheduled - Utilities II Shutdown for Train F	50	-	50
I.1.4	Scheduled - Utilities II Shutdown for Train G	50	-	50
I.1.5	Shutdown Plant 15/19/29/35/39	156	150	6
I.1.6	Scheduled - Train C Shutdown	-	700	(700)
I.1.7	Scheduled - Train D Shutdown	-	700	(700)
I.1.8	Scheduled - Train H Shutdown	-	700	(700)
I.1.9	Scheduled - Utilities I Shutdown for Train D	-	50	(50)
I.1.10	Scheduled - Utilities II Shutdown for Train H	-	50	(50)
<b>Total Shutdown Activities</b>		<b>2,156</b>	<b>2,350</b>	<b>(194)</b>
<b>I.2 Maintenance Repairs :</b>				
I.2.1	Maintenance Repairs - Utilities	1,760	1,700	60
I.2.2	Maintenance Repairs - Trains	1,420	1,500	(80)
I.2.3	Maintenance Repairs - Storage & Loading	880	850	30
<b>Total Routine Maintenance Repair</b>		<b>4,060</b>	<b>4,050</b>	<b>10</b>
<b>I.3 Preventive Maintenance :</b>				
I.3.1	Preventive/Predictive Maintenance - Trains	310	325	(15)
I.3.2	Preventive/Predictive Maintenance - Utilities	313	300	13
I.3.3	Preventive/Predictive Maintenance - Storage & Loading and Marine Building	94	90	4
<b>Total Preventive/Predictive Maintenance</b>		<b>717</b>	<b>715</b>	<b>2</b>
<b>Total Routine Activities :</b>		<b>6,933</b>	<b>7,115</b>	<b>(182)</b>
<b>II PLANT &amp; SUPPORT MAINTENANCE WORK PROGRAM</b>				
<b>II.1 Civil Works :</b>				
II.1.1	Repair on-line injection LNG Transfer line I/II insulation (Phase XIII of XV)	300	-	300
II.1.2	Replace wall & roof at Power Generator Utilities Module-2	160	-	160
II.1.3	Repair roof at Surplus Warehouse Building	50	-	50
II.1.4	Painting Plant Area	760	800	(40)
II.1.5	Grass Cutting & Ground Keeping	450	300	150
II.1.6	Repair/Replace Insulation Plant Area	380	400	(20)
II.1.7	Sandblast & Painting LNG Tank 24-D-XX	286	275	11
II.1.8	Repair Fire-Proofing - Phase IX of X	260	250	10
II.1.9	Sandblast & Paint LPG Tank - 17-D-XX (1 tank)	182	175	7
II.1.10	Biennial Routine Cleaning LNG Rundown & Transfer line	146	140	6

**PROPOSED ORIGINAL BUDGET 2013**

<b>ID No.</b>	<b>DESCRIPTION</b>	<b>Budget</b>	<b>Budget</b>	<b>Variance</b>
		<b>2013</b>	<b>2012</b>	
II.1.11	Replace Asbestos Roof & Wall Compressor Turbine Building Train B	130	-	130
II.1.12	Repair broken concrete structure plant-32 Module-1	104	100	4
II.1.13	Paint Condensate, Fire Water, WTP Storage Tanks	52	50	2
II.1.14	Cleaning Wall & Dome Tanks : 24D-xx, 17D-xx	52	50	2
II.1.15	FRP CW Line Coating at Trains & Utilities (Phase III of V)	26	25	1
II.1.16	Repair Erosion Road from Plant 49 to KM-53	26	25	1
II.1.17	Repair Underground Sewer Line Utilities I & II	26	25	1
II.1.18	Repair Warehouse Roof	-	50	(50)
II.1.19	Repair Outfall trains G/H and behind Lay down J	-	155	(155)
II.1.20	Concrete repair at Utilities Area	-	155	(155)
II.1.21	Replace Asbestos Roof & Wall Compressor Turbine Building Module II	-	120	(120)
II.1.22	Repair broken concrete structure dock-2	-	100	(100)
II.1.23	New concrete at Plant 20 to Ground flare 1 & 3)	-	75	(75)
II.1.24	New road concrete Train D" and beside 19C-7/8 to Old plant 34	-	75	(75)
II.1.25	<u>Repair Dike at Lagoon Sewage Plant</u>	-	30	(30)
<b>Total Civil Works</b>		<b>3,390</b>	<b>3,375</b>	<b>15</b>
II.2	<b>Mechanical Works</b>			
II.2.1	Replace 1 set (2 ea) 35-E-XX Intercoolers	250	-	250
II.2.2	Replace cooler at 2E-5A/B & 4E-19/24/29AB of Train X	40	-	40
II.2.3	Biennial Inspection of Boilers	416	400	16
II.2.4	Replace Expansion Bellows	148	140	8
II.2.5	Replace Steam Trap	90	85	5
II.2.6	Replace Spring Support	90	85	5
II.2.7	Recertification PSV	85	85	-
II.2.8	Replace Cover, Channel Box Cooling Water Exch. (4-E-1, 4-E-2)	79	75	4
II.2.9	Upgrade Plant 36 Acid plant at Module I & II	42	40	2
II.2.10	Repair/Replace Trash Rack at Module I (phase IV of V)	42	40	2
II.2.11	Repair/cleaning/replace demister pad at plant 21 (21-C-2A/H)	32	30	2
II.2.12	Replace 24" HPS Valve Train E	-	200	(200)
II.2.13	Replace Face Plate (Flange) DB Arm & gasket	-	125	(125)
II.2.14	Inspection of A5E-1	-	100	(100)
II.2.15	Replace corroded pipe/bolts/structure/ platforms Plant-32	-	85	(85)
II.2.16	Repair 31-C-8 (Dome replacement)	-	45	(45)
II.2.17	31-E-174 Internal inspection	-	45	(45)
<b>Total Mechanical Works</b>		<b>1,314</b>	<b>1,580</b>	<b>(266)</b>
II.3	<b>Machinery Heavy Equipment Works :</b>			
II.3.1	<b>Machinery Equipment</b>			
II.3.1.1	Incoming Inspection & Outside Repair Turbine Rotor & Nozzle Boxes Ex-H4-KT-1/2/3	2,000	-	2,000
II.3.1.2	Repair Rotor Steam Turbine Gen. (ex 31-PT-3)	250	-	250
II.3.1.3	Replace Mechanical Seals of 4K-1/2/3 leakage	200	-	200
II.3.1.4	Overhaul Condensing Steam Turbine Generator (31-PT-12)	400	100	300
II.3.1.5	Overhaul Non Condensing Steam Turbine Generator (31-PT-9)	350	350	-
II.3.1.6	Overhaul CW Pumps 32-G-XX (1 Units)	312	300	12

**PROPOSED ORIGINAL BUDGET 2013**

<b>ID No.</b>	<b>DESCRIPTION</b>	<b>Budget</b>	<b>Budget</b>	<b>Variance</b>
		<b>2013</b>	<b>2012</b>	
II.3.1.7	Overhaul Air Compressor 35-K-1XX (2 Units)	170	80	90
II.3.1.8	Overhaul Travelling Screens 32-T-xx (1 unit)	83	80	3
II.3.1.9	Recondition Governor & Hydraulic Amplifier	83	80	3
II.3.1.10	Repair rotor of small turbine & pump	63	60	3
II.3.1.11	Inspect/Overhaul 17-K-1 Boil off Compressor	47	45	2
II.3.1.12	Obsolete Utilities pump replacement	42	40	2
II.3.1.13	Overhaul Turbine H4-KT-1/2/3	-	1,350	(1,350)
II.3.1.14	Outside Repair Turbine Rotor Ex-D4-KT-1/2 (for Insurance Spare)	-	270	(270)
II.3.1.15	Recondition Turbine Expander ex 39-KT-14	-	160	(160)
II.3.1.16	Recondition Turbine Expander ex 29-TX-171 (2 units)	-	150	(150)
II.3.1.17	Recondition Balancing Machine (Gear Box)	-	60	(60)
II.3.1.18	Fin Fan Retrofit (phase VI of VI)	-	45	(45)
II.3.1.19	Outside Repair ex. 2-K-x / 24-K Rotor	-	40	(40)
II.3.1.20	Outside repair Ex.B2-KT-1 Rotor	-	40	(40)
<b>Total Machinery Equipment</b>		<b>4,000</b>	<b>3,250</b>	<b>750</b>
II.3.2	<b>Heavy Equipment</b>			
II.3.2.1	Repainting Crane & Heavy Equipment	100	-	100
II.3.2.2	Repair roof Garage shop	50	-	50
II.3.2.3	Concrete slab garage area	40	-	40
II.3.2.4	Replace / Repair Rolling Door 4 Unit (2 unit/year)	25	-	25
II.3.2.5	Normal Maintenance Repair - Mobile Equipment	362	348	14
II.3.2.6	General Overhaul Heavy Equip/Trucks, Vacuum Truck, Fire Truck	208	200	8
II.3.2.7	Preventive/Predictive Maintenance - Mobile Equipment	182	175	7
II.3.2.8	Gen. Overhaul Engine & Hydraulic Sys. (Manitowoc Crane)	156	150	6
II.3.2.9	Repaint Floor Work Shop: HE Shop (phase III of III)	52	50	2
II.3.2.10	General repair Engine & Hydraulic Crane	50	80	(30)
II.3.2.11	Overhaul Dozer & Loader	50	100	(50)
II.3.2.12	General repair Engine Compressors	46	44	2
<b>Total Heavy Equipment</b>		<b>1,321</b>	<b>1,147</b>	<b>174</b>
II.3.3	<b>Marine Boat Equipment</b>			
II.3.3.1	Special Survey TB Bontang 4	200	-	200
II.3.3.2	Special Survey TB Bontang 5	200	-	200
II.3.3.3	Annual Survey 10 unit Tug Boats, Mooring Boats & Patrol Boats	50	-	50
II.3.3.4	Intermediate Survey Tug Boat-2	-	250	(250)
II.3.3.5	Intermediate Survey Tug Boat-6	-	250	(250)
II.3.3.6	Intermediate Survey Tug Boat-7	-	250	(250)
II.3.3.7	Intermediate Survey Mooring Boat - Beras Basah	-	130	(130)
II.3.3.8	Intermediate Survey Mooring Boat - Berebes I	-	130	(130)
II.3.3.9	Intermediate Survey Mooring Boat - Berebes II	-	130	(130)
II.3.3.10	Inspect, Recertification & Repair Patrol Boat-1	-	65	(65)
II.3.3.11	Inspect, Recertification & Repair Patrol Boat-2	-	65	(65)
<b>Total Marine Boat Equipment</b>		<b>450</b>	<b>1,270</b>	<b>(820)</b>
<b>Total Machinery Heavy Equipment Works</b>		<b>5,771</b>	<b>5,667</b>	<b>104</b>

**PROPOSED ORIGINAL BUDGET 2013**

<b>ID No.</b>	<b>DESCRIPTION</b>	<b>Budget</b>	<b>Budget</b>	<b>Variance</b>
		<b>2013</b>	<b>2012</b>	
II.4	<b>Instrument Works :</b>			
II.4.1	Processor Module CP345 at Utilities-1/2	250	-	250
II.4.2	Drier Valve replacement at Train C-D	200	-	200
II.4.3	Replace Actuator Fisher 667 Dock 2	150	-	150
II.4.4	Transmitter Replacement Train F	150	-	150
II.4.5	Replacement WW505 at 8 FD-Fan Boiler Module II (Phase 1: 3 Ea)	100	-	100
II.4.6	Replace CRT DCS (Phase 1: Train B-D)	75	-	75
II.4.7	Replace Igniter	60	-	60
II.4.8	Train H, ESDV Overhaul	-	170	(170)
II.4.9	Replace Vent valve & Accessories, upstream LNG/LPG Arms Dock #2,	-	125	(125)
II.4.10	Replace Travelling screen Control Valve Phase-I of III	-	100	(100)
II.4.11	Replace de super heater valve, Utilities-1	-	90	(90)
II.4.12	Replace All Transmitter, Utilities-1/2	-	90	(90)
II.4.13	Replace hydraulic solenoid valve malfunction Loading Arms, Dock #2	-	90	(90)
II.4.14	Replace Control Valve with manual hand jack 3"	-	70	(70)
II.4.15	Replace Battery for FCS-HMCS flatted	-	65	(65)
II.4.16	Replace Gas Spring, Amri Valve, Transfer Line	-	40	(40)
II.4.17	Replace Level Switch obsoletoe Plant-19	-	40	(40)
II.4.18	Replace internal parts of 33-HV-14xx, Bettis HCV	-	40	(40)
II.4.19	Replace LCD ICS Centum CS	-	40	(40)
II.4.20	Replace Modules for ESD/EDP Train H; consist of I/O and Processor	-	35	(35)
II.4.21	Replace Modules for ESD/EDP Train G; consist of I/O and Processor	-	35	(35)
II.4.22	Train A-H, pneumatic trip relay	-	30	(30)
II.4.23	Replace Field Instrument in Chloropac, 32-V-XX	-	25	(25)
II.4.24	Replace Differential Pressure Transmitter of HWS	-	-	-
II.4.25	Repair Operation Keyboard due to malfunction	-	-	-
II.4.26	Replace Level Differential Transmitter of Travelling Screen	-	-	-
<b>Total Instrument Works</b>		<b>985</b>	<b>1,085</b>	<b>(100)</b>
II.5	<b>Electrical Works :</b>			
II.5.1	Replace annunciator utilities area (4 ea)	120	-	120
II.5.2	Replace Coil Condenser	75	-	75
II.5.3	Replace A/C window class I	75	-	75
II.5.4	Replacement of Fire Pump Controller for 49-GM-9/10 and 49-GE-11	75	-	75
II.5.5	Overhaul CWP Motors 32-GM-XX	328	315	13
II.5.6	Improvement Chlorination Plant (32V-5/8 A/B/C)	208	200	8
II.5.7	Replace Chloropac Chlorinating Cells	191	180	11
II.5.8	Replace Power Cable Feeder	186	175	11
II.5.9	Overhaul Power Generators	150	80	70
II.5.10	Replace Battery UPS unit	85	80	5
II.5.11	Overhaul Power supply Unit 32-V-3A/B	80	175	(95)
II.5.12	Overhaul Medium Voltage Motor (4.16 KV Motors)	73	70	3
II.5.13	Replace Air Condenser HVAC	74	70	4
II.5.14	Replace panel Water Well	69	65	4
II.5.15	Overhaul UPS	40	70	(30)

**PROPOSED ORIGINAL BUDGET 2013**

<b>ID No.</b>	<b>DESCRIPTION</b>	<b>Budget 2013</b>	<b>Budget 2012</b>	<b>Variance</b>
II.5.16	Replace Battery Fire Water Engine	-	210	(210)
II.5.17	Replace all Oil, Gauges for HV Transformer	-	145	(145)
II.5.18	Transformers replacement	-	55	(55)
II.5.19	Replace Various Breakers (3 ea)	-	50	(50)
II.5.20	Replace low voltage power cable 32-V- 2A/B/C/D	-	40	(40)
	<b>Total Electrical Works</b>	<b>1,829</b>	<b>1,980</b>	<b>(151)</b>
II.6	<b>Various Non AFE Projects</b>			
II.6.1	Various Non AFE Projects (Tr. B - H, Utl, I & II, S/L)	93	89	4
	<b>Total Various Non AFE Projects</b>	<b>93</b>	<b>89</b>	<b>4</b>
	<b>Total Plant &amp; Support Maintenance Work Programs</b>	<b>13,382</b>	<b>13,776</b>	<b>(394)</b>
III	<b>OTHER PLANT &amp; SUPPORT ACTIVITIES</b>			
III.1	<b>Shipping &amp; Harbor :</b>			
III.1.1	Replace Range Light (6 ea)	120	-	120
III.1.2	Repair Navigation Aids	240	170	70
III.1.3	Normal Maintenance Repair Shipping & Harbor	187	180	7
III.1.4	Repair Mooring Boat Jetty	50	44	6
III.1.5	Preventive Maintenance Shipping Repair Patrol Boat-2	-	25	(25)
	<b>Total Shipping &amp; Harbor :</b>	<b>597</b>	<b>419</b>	<b>178</b>
III.2	<b>Maintenance Infrastructures :</b>			
III.2.1	Grass Cutting and Ground Keeping PSF Area	125	125	-
III.2.2	CSMS Program	120	120	-
III.2.3	Normal Maintenance Building Repair at Zone II	78	75	3
III.2.4	Normal Maintenance Repair - Warehouse	52	50	2
III.2.5	Repaint Floor of Maintenance Section Shop	53	50	3
III.2.6	Repair Roof of Maintenance Section Shop	32	30	2
III.2.7	Workshop Machine Calibration	32	30	2
III.2.8	Preventive Maintenance - PSF Equipment	26	25	1
	<b>Total Maintenance Infrastructures :</b>	<b>518</b>	<b>505</b>	<b>13</b>
III.3	<b>Technical Infrastructures :</b>			
III.3.1	New Permanent Line Facilities For Train E/F/G/H 1C-5 Washing Activities	22	-	22
III.3.2	Circulation Line System for Fire Water Test	20	-	20
III.3.3	Normal PM & Maintenance Repair - Laboratory	52	50	2
	<b>Total Technical Infrastructures :</b>	<b>94</b>	<b>50</b>	<b>44</b>
III.4	<b>SHE-Q :</b>			
III.4.1	Normal Maintenance Repair - SHE-Q	130	125	5
III.4.2	Incinerator Multipurpose Maintenance	26	25	1
	<b>Total SHE-Q</b>	<b>156</b>	<b>150</b>	<b>6</b>
	<b>Total Other Plant &amp; Support Activities :</b>	<b>1,365</b>	<b>1,124</b>	<b>241</b>
	<b>Total Plant Maintenance</b>	<b>21,680</b>	<b>22,015</b>	<b>(335)</b>
IV	<b>SPECIAL PROGRAMS</b>			
IV.1	<b>Reliability Programs :</b>			
IV.1.1	Overhaul Loading Arms LD#1 (>10 years)	5,500	-	5,500
IV.1.2	Upgrade Controller & Gear Box replacement Balancing machine	400	-	400

**PROPOSED ORIGINAL BUDGET 2013**

<b>ID No.</b>	<b>DESCRIPTION</b>	<b>Budget 2013</b>	<b>Budget 2012</b>	<b>Variance</b>
IV.1.3	LNG Plant Reliability Modelling (Pilot Project on Train H)	200	-	200
IV.1.4	Overhead Crane Assessment (All Area)	150	-	150
IV.1.5	RCM and RAM Analysis Plant 31 and 32	150	-	150
IV.1.6	MI Document Update Phase 1	100	-	100
IV.1.7	Maintenance Procedure Review (All Craft)	100	-	100
IV.1.8	Replace fabric expansion joint of flue gas duct Boiler Module I	50	-	50
IV.1.9	Reliability Workshop	50	-	50
IV.1.10	Reliability Dashboard	50	-	50
IV.1.11	Upgrade Mechanical Governor for 31-PT-2/3/4	50	-	50
IV.1.12	1 Unit of Gland Steam Condenser	30	-	30
IV.1.13	1 Unit of Four way Valves lube oil system of Trains 4K-1/2/3 (CS	30	-	30
IV.1.14	Install non metallic pipe shoe Plant 38	30	-	30
IV.1.15	Corrosion and Painting Survey in All Plant (reliability Program)	250	250	-
IV.1.16	Inspect FRP underground CW line in Train area (reliability	100	25	75
IV.1.17	Repair Conductivity meter	52	50	2
IV.1.18	Cap & Plugs at all location (Safety issue, reliability Program)	50	80	(30)
IV.1.19	24" Fire Water Line in Train C/D (reliability Program)	-	400	(400)
IV.1.20	Replace Vacuum Breaker of Discharge Cooling Water Pump (reliability Program)	-	330	(330)
IV.1.21	Replace Drain Control Valve 6" of HWS	-	198	(198)
IV.1.22	Replace Gas Chromatograph Train E	-	180	(180)
IV.1.23	Replace Gas Chromatograph Optichrom Train G	-	135	(135)
IV.1.24	Replace valve positioners to smart positioner on critical item	-	100	(100)
IV.1.25	Train A-H, All Temperature Transmitters in critical equipments, (reliability Program)	-	100	(100)
IV.1.26	LO Coolers of FD Fan Boiler 6~11 - 1 unit	-	85	(85)
IV.1.27	LO Coolers of Cooling Water plant 32 - 1 unit	-	50	(50)
IV.1.28	Repair Gas Detector 20 ea	-	40	(40)
<b>Total Reliability Programs :</b>		<b>7,342</b>	<b>2,023</b>	<b>5,319</b>
IV.2	<b>Plant Inspection :</b>			
IV.2.1	4 years Spring Support surveys all Plants	33	-	33
IV.2.2	NDT & Radiography Examination 2012-2014	115	85	30
IV.2.3	SKPP Fisik PV & HE Module 2 & S/L	75	75	-
IV.2.4	Inspectors for Shutdown Train A/F/G	70	70	-
IV.2.5	Eddy Current test for G4-E-1A/B, G4-E-5 A/B, G4E-6 A/B	67	35	32
IV.2.6	SKPP Fisik - Cranes (All Crane, included Gondola & Lift)	37	37	-
IV.2.7	4 years Steam trap surveys all Plants	-	45	(45)
IV.2.8	SKPP Physical Rotating all plant	-	45	(45)
IV.2.9	Insitu Metallography and RUL Boiler as per UU 1930	-	31	(31)
IV.2.10	SKPP Fisik Electric (Module 2)	-	15	(15)
<b>Total Plant Inspection :</b>		<b>397</b>	<b>438</b>	<b>(41)</b>
IV.3	<b>Plant Equipment Recertification :</b>			
IV.3.1	SKPI all Plant	128	-	128
IV.3.2	SKPP Audit & Fisik Rotating all plant	121	-	121
IV.3.3	SKPP Audit PV & HE Module 2 & S/L	87	87	-
IV.3.4	Biennial Boiler Shutdown	71	55	16
IV.3.5	SKPP Audit + Fisik Electric Module 2	50	25	25
IV.3.6	SKPP Audit Crane All Area	30	44	(14)
IV.3.7	Recertification Tug Boats, Mooring Boat, Patrol Boat(New), New Tug Boat, Class Survey BKI & Sea Worthiness	30	95	(65)
IV.3.8	Migas Inspector for PSV	26	26	-
IV.3.9	SKPP LNG/LPG/HC Condensate Tanks	-	180	(180)
IV.3.10	Recertification of Gondola and Elevator Main Building + lifting gear inspection twice a year as per SHEQ-MS	-	27	(27)
IV.3.11	To Calibrate Gas & Oxygen Tester (CO)	-	25	(25)
<b>Total Plant Equipment Recertification :</b>		<b>543</b>	<b>564</b>	<b>(21)</b>
<b>TOTAL SPECIAL PROGRAMS</b>		<b>8,282</b>	<b>3,025</b>	<b>5,257</b>
<b>GRAND TOTAL PLANT MAINTENANCE 2013</b>		<b>29,962</b>	<b>25,040</b>	<b>4,922</b>

## **Plant Maintenance Work Program Original Budget 2013**

Plant maintenance budget proposal and supporting plant facilities in 2013 to 7 (seven) Trains looks to increased by \$4,922 or 20% over from the 2012 Revised Budget of \$25,040 to \$29,962 mainly due to contribution of Overhaul Loading Arm of Dock #01.

The increase is due to the addition of a work program for plant reliability, inspection programs and recertification programs, as well as A decrease in regular wages escalation as follows:

### **I. Routine Activities**

The Plant Maintenance Work Program Original Budget 2013 is \$6,933 which is a decrease of \$182 or 3% from the Revised Budget 2012 of \$7,115.

#### **I.1 Shutdown**

The Shutdown Activities budget 2013 is \$2,156 which is a decrease of \$194 (8%) to cover the Trains F & G scheduled shutdown jobs and Utilities. The complete jobs are as follows:

- I.1.1 Scheduled Train F Shutdown \$1,200 to cover Insulation replacement based on inspection recommendation.
- I.1.2 Scheduled Train G Shutdown \$700, to cover 4 years schedule shutdown (inspect statutory equipment, PSV, insulation replacement based on condition & eddy current tubular inspection/probolog G4-E-1 A/B). Follow up of piping inspection program.
- I.1.3 Scheduled – Utilities II Shutdown for Train F \$50 to cover cleaning basin, desecrator inspection & cooling water outfall repair, inspection of 31-C-35 for 8 years blow off drum, steam leaks repair.
- I.1.4 Scheduled – Utilities II Shutdown for Train G \$50 to cover cleaning basin, desecrator inspection & cooling water outfall repair, inspection of 31-C-35 for 8 years blow off drum, steam leaks repair.
- I.1.5 Shutdown Plant 19/36/35/39 \$156 to cover all maintenance repairs in all plants and unscheduled shutdown.

#### **I.2 Maintenance Repair**

The Maintenance Repairs budget 2013 \$4,060 is an increase \$10 (0.2%) from Revised Budget 2012 \$4,050 based on the average of actual spending budget in the last 3 years for Plant Maintenance contract (ref.CA-11046), maintenance of Instrumentation equipment contract, maintenance of electrical equipment contract (ref.CA09004), civil works contract (ref.CA-08257) and maintenance contracts for rotating machines (ref.CA10047).

- I.2.1 Maintenance Repairs – Utilities \$1,760 to cover all maintenance repairs in Utilities Areas. It does not include the Maintenance Line Item Work Programs.
- I.2.2 Maintenance Repairs – Trains \$1,420 to cover all maintenance repairs in Trains Areas. It does not include the Maintenance Line Item Work Programs and Train Idle.

- I.2.3 Maintenance Repairs – Storage & Loading and LPG \$880 to cover all maintenance repairs in Storage & Loading and LPG Plant Areas. It does not include the Maintenance Line Item Work Programs.

Above cost has been added an anticipated escalation UMSK for manpower, materials transport and CSMS Program for unit rate Contracts.

### I.3 Preventive Maintenance:

The Preventive Maintenance Programs Original Budget 2013 \$717 is an increase \$2 (0.3%) from Revised Budget 2012 \$715.

This budget covers the PM/PDM jobs of all equipment in the Plant. It is based on the Original Budget 2013 budget spending and to cover the PM jobs of the LPG Plant.

- I.3.1 Preventive/Predictive Maintenance – Trains \$310 to cover all PM/PDM programs in Trains Areas excluding Train Idle.
- I.3.2 Preventive/Predictive Maintenance – Utilities \$313 to cover all PM/PDM programs in Utilities Areas.
- I.3.3 Preventive/Predictive Maintenance – Storage & Loading and Marine building \$94 to cover all of PM/PDM programs in Storage & Loading, Marine building and LPG Plant Areas.

## II. Plant & Support Maintenance Work Program

### II.1 Civil Work Programs

The Civil Work Programs Original Budget 2013 increase \$15 (0.4%) from Revised budget 2012 from \$3,375 to \$3,390 to cover several new work programs as follows. This is to cover the following programs:

- II.1.1 Repair on-line injection LNG Transfer line I/II insulation (Phase XIII of XV) \$300. LNG Transfer Line to Dock #1.
- II.1.2 Replace wall & roof at Power Generator Utilities Module 2 based on environment issue \$160.
- II.1.3 Repair roof at Surplus Warehouse Building \$50 due to some area has leakage.
- II.1.4 Painting Plant Area \$760. For C/W, S/L, Train Module 1&2 and refer. based on contract CA-11016.
- II.1.5 Grass Cutting & Ground Keeping for Zone I & II \$450, additional \$150 compared to previous 2012 budget due to security access control at mangrove area.
- II.1.6 Replace Insulation as per Inspection \$380, as per Inspect survey recommendation and based on contract CA-11057.
- II.1.7 Sandblast & Painting LNG Tank 24-D-XX \$286. As per Inspection Recommendation.
- II.1.8 Repair Fire-Proofing - Phase IX of X \$260, as per Insurance recommendation.
- II.1.9 Sandblast & Painting LPG Tank - 17-D-XX (1 tank) \$182. As per Inspection Recommendation.
- II.1.10 Biennial Routine Cleaning LNG Rundown & Transfer line \$146. Routine Cleaning Fungus.

- II.1.11 Replace Asbestos Roof & Wall Compressor Turbine Building Train B \$130.
- II.1.12 Repair broken concrete structure plant-32 Module-1 \$104 as continuation the previous program.
- II.1.13 Paint Condensate, Fire Water, WTP Storage Tanks \$52.
- II.1.14 Cleaning Wall & Dome Tanks: 24-D-XX, 17-D-XX \$52. Routine Cleaning
- II.1.15 FRP CW Line Coating at Trains & Utilities (Phase III of V) \$26. Continue Paint Fiber Glass piping all Plant.
- II.1.16 Repair Erosion Road from Plant 49 to KM-53 \$26. Routine repair.
- II.1.17 Repair Underground Sewer Line Utilities I & II \$26, routine repair due to corroded.

## II.2 Mechanical Work Programs

The Mechanical Work Programs Original Budget 2013 decrease \$266 (17%) from Revised Budget 2012 from \$1,580 to \$1,314 to cover work programs as follows:

- II.2.1 Replace 1 set (2 Ea) 35-E-XX Intercoolers \$250. For 35-K-1B/C Intercooler.
- II.2.2 Replace cooler at 2E-5A/B & 4E-19/24/29AB \$40. Replace 3 Unit Coolers.
- II.2.3 Biennial Inspection of Boilers \$416. For 10 boilers with increases for escalation.
- II.2.4 Replace 4 ea Expansion Bellows \$148 as per Inspection recommendation
- II.2.5 Routine Steam Trap Replacement \$90 as Inspection recommendation
- II.2.6 Routine Spring Support Replacement \$90 as per Inspection recommendation
- II.2.7 Recertification PSV on module I &II. \$85 during on line.
- II.2.8 Replace Cover and Channel Box Cooling Water Exchanger (4-E-1, 4-E-2) \$79 as Inspection recommendation
- II.2.9 Repair Acid piping lining on Plant 36 Acid plant at Module I & II \$42.
- II.2.10 Repair/Replace Trash Rack at Module I (phase IV of V) \$42. continue program
- II.2.11 Internal inspection on demister pad at plant 21 (21-C-2A/H) \$32.

## II.3 Machinery Heavy Equipment Work Programs

The Machinery Heavy Equipment Work Programs Original Budget 2013 increase by \$104 (2%) from Revised Budget 2012 from \$5,667 to \$5,771 due to cover several new work programs. This budget increase is also caused by the merger of Mobile Equipment and Marine Sections. The programs are as follows:

### II.3.1 Machinery Equipment

- II.3.1.1 Incoming Inspection & Outside Repair Turbine Rotor & Nozzle Boxes Ex-H4-KT-1/2/3 \$2,000. For insurance and maintenance spare (Include rotor & nozzle box repair)
- II.3.1.2 Repair rotor Steam Turbine Generator (ex 31-PT-3) \$250 for maintenance spare rotor back pressure steam turbine module – 1.
- II.3.1.3 Replace Mechanical Seals of 4-K-1/2/3 leakages \$200 due to some compressor seals having leaks and they have more than 15 years in operation.
- II.3.1.4 Overhaul condensing steam turbine Generator (31-PT-12) \$400. The 31-PT-12 has been operating for 20 years. Note : The last year budget was lower than the actual overhaul cost \$ 410.

- II.3.1.5 Overhaul steam turbine Generator (31-PT-9) \$350 that has been operating for 20 years.
- II.3.1.6 Overhaul CW Pumps 32-G-XX (1 Units) \$312. Routine MHE program.
- II.3.1.7 Overhaul Air Compressor 35-K-1XX (2 units) \$170. Note : The last year budget for overhaul only 1 unit.
- II.3.1.8 Overhaul Travelling Screens 32-T-xx (1 units) \$83. Routine MHE program.
- II.3.1.9 Recondition Governor & Hydraulic Amplifier \$83. Routine MHE program.
- II.3.1.10 Repair rotor of small turbine & pump \$63. Routine MHE program.
- II.3.1.11 Inspect/Overhaul 17-K-1 Boil off Compressor \$47. Routine MHE program.
- II.3.1.12 Obsolete Utilities pump replacement \$42. Routine MHE program.

### II.3.2 Heavy Equipment

- I.7.1.1 Repainting 10 units Crane & HE \$100. Repainting some heavy equipment.
- I.7.1.2 Replace roof Garage shop \$50. The garage shop roof is corroded and leak.
- I.7.1.3 Provide Concrete slab \$40 for heavy equipment washing facilities.
- I.7.1.4 Replace the broken Rolling Door 4 Units (2 unit/year) \$25.
- I.7.1.5 Normal Maintenance Repair - Mobile Equipment \$362. Based on CA- 11017 contract routine repair for Mobile Equipment.
- I.7.1.6 General Overhaul Heavy Equip/Trucks, Vacuum Truck, Fire Truck \$208. Refer: MK012604 + Pump + Propeller shaft + Installation.
- I.7.1.7 Preventive/Predictive Maintenance - Mobile Equipment \$182. Based on CA- 08307 contract routine PM for Mobile Equipment.
- I.7.1.8 Special Overhaul Engine & Hydraulic System (Manitowoc Crane) \$156, for BK-013.
- I.7.1.9 Repaint Floor Work Shop: HE Shop (phase III of III) \$52.
- I.7.1.10 General repair Engine & Hydraulic Crane \$50.
- I.7.1.11 Overhaul Dozer & Loader \$50.
- I.7.1.12 General repair Engine Compressors \$46.

### I.6.1 Marine Boat Equipment

- I.7.1.1 Special Survey TB- Bontang 5 in 2013 US\$ 200
- I.7.1.2 Special Survey TB- Bontang 4 in 2013 US\$ 200..
- I.7.1.3 Annual Survey 10 unit Tug Boats, Mooring Boats & Patrol Boats in 2013, total US\$ 50.

### II.4 Instrument Work Programs

The Instrument Work Programs Original Budget 2013 decreases \$100 (9%) under from Revised Budget 2012 \$1,085 to \$985 for the following work programs:

- II.4.1 Processor Module CP-345 at Utilities-I/II \$250. Due to aging some of processor type CP-345 malfunction by itself. This unit Run to Fail, unpredictable and can't be repaired.
- II.4.2 Drier Valve replacement at Train C-D \$200. Actuator Drier Valve existing obsolete and discontinued. To be replace with other brand by considering it function.
- II.4.3 Replace Actuator Fisher 667 Dock # 2 \$150. Actuator Valve existing Fisher 667 was obsolete and discontinued. To be replacing with other brand by considering its functions for 5 valves.

## **PROPOSED ORIGINAL BUDGET 2013**

- II.4.4 Transmitter Replacement Train F \$150. Some of transmitter at Train F discontinued and obsolete will be replace by Smart Transmitter.
- II.4.5 Replacement FD-Fan Speed Control WW-505 \$100. The existing WW-505 obsolete, will be replace by Enhance WW-505E the new type for Boiler 23 – 27 (Phase I: 3 Ea).
- II.4.6 Replace CRT DCS \$75. Some of CRT's at Process Train, Utilities and Storage Loading was problem and can't be repair due to aging.
- II.4.7 Replace Igniter \$60. Some of spark plug and igniter at each burner from Boiler #1~11 was damage. It was difficult to start up Boiler after Shutdown.

### **II.5 Electrical Work Program**

The Electrical Work Programs Original Budget 2013 is a decrease \$151 (8%) from Revised Budget 2012 \$1,980 to \$1,829 for the following work programs:

- II.5.1 Replace annunciator utilities area (4 ea) \$120 for 30-PS-5/6, 30-PS-201, 32-PS-54/64.
- II.5.2 Replace Coil Condenser \$75 for Train E, TGCR Module-2, and MHE shop.
- II.5.3 Replace A/C window class I \$75 Analyzer house all Trains (30 units).
- II.5.4 Replacement of Fire Pump Controller for 49-GM-9/10 and 49-GE-11 \$75.
- II.5.5 Rewind CWP Motors 32-GM-61 and Overhaul 32-GM-2,5,7 \$328.
- II.5.6 Replace Cell & spool chamber Plant (32V-5/8 A/B/C) \$208.
- II.5.7 Replace Chloropac Chlorinating Cells \$191.
- II.5.8 Replace Power Cable Feeder \$186 from Water Well-11 to Water Well-12.
- II.5.9 Overhaul 2 units Power Generators 31-PG-9/12 \$150.
- II.5.10 Replace Battery UPS unit 16-PD-1/2 \$85.
- II.5.11 Overhaul Power supply Unit 32-V- 3A/B \$80.
- II.5.12 Overhaul Medium Voltage Motor (4.16 KV Motors) \$73. For 3 units MV motor.
- II.5.13 Replace Air Condenser HVAC \$74. MCR Module-1.
- II.5.14 Replace panel Water Well \$69 for 3 units.
- II.5.15 Overhaul UPS \$40. Fan replacement all UPS.

### **II.6 Various Non-AFE Projects**

The Operating Projects Original Budget 2013 to cover small modifications with a total cost \$93.

## **III. Other Plant & Support Activities**

The Support Facilities Work Programs Original Budget 2013 is an increase \$241 (21%) from Revise Budget 2012 from \$1,124 to \$1,365 for the following work programs:

### **III.1 Shipping & Harbor**

- II.1.1 Replace Range Light (6 ea) \$120.
- II.1.2 Repair Navigation Aids \$240.
- II.1.3 Normal Maintenance Repair Shipping & Harbor \$187 to cover all repair and Preventive Maintenance included UMSK.
- II.1.4 Repair Mooring Boat Jetty \$50.
- II.1.5

### **III.2 Maintenance Infrastructures**

- II.2.1 Grass Cutting and Ground Keeping PSF Area \$125, based on contract CA-10013 contract, included escalation UMSK.
- II.2.2 CSMS Program \$120 for Unit rate Man power Contracts (est. 500 workers).
- II.2.3 Normal Maintenance Repair - all Maintenance Section \$78.
- II.2.4 The Warehouse work Programs \$52 to cover normal maintenance repair.
- II.2.5 Repaint Floor of Maintenance Section Shop \$53, for Electrical shop.
- II.2.6 Repair Roof of Maintenance Section Shop \$32 to repair / replace roof due to broken.
- II.2.7 Workshop Machine Calibration \$32. To meet the quality standards of the lathe in accordance with applicable regulations (ISRS 8, ISO 1708:1989, etc.).
- II.2.8 Preventive Maintenance - PSF Equipment \$26 to cover preventive / predictive maintenance at all maintenance offices.

### **III.3 Technical Infrastructures**

- II.3.1 New Permanent Line Facilities For Train E/F/G/H 1C-5 Washing Activities \$22. During shutdown, to inspect 1C-5, inspector/personnel have to enter the vessel. For safety reason, it is mandatory to wash the vessel to remove remaining heavy hydrocarbons and amine solution. This must be done by flowing steam condensate into the vessel using a flexible hose which is not properly safe. To improve the safety aspect when removing the remaining heavy hydrocarbons and amine solution from 1C-5, it is recommended to use a fix line by installing a new piping system to deliver steam condensate into the vessel thru 1C-6.
- II.3.2 Circulation Line System for Fire Water Test \$20. Fire pump performance test is conducted once a year in all pumps in PT Badak NGL plant site. The problem faced during performance test in Plant 49. Test is conducted by discharging the flow back to water tank. This procedure caused the water tank turbid. A new testing line system shall be constructed to avoid the water in the water tank turbid. Discharging the flow back to tank 49D-1A/B causes the water in that tank turbid, which will affect the cleanliness of supply water to households. Therefore, discharge line shall be rerouted to other tank. Based on discussion with Fire & Safety section and Utilities I section, it is recommended to direct the discharge flow to raw water storage tank 49D-2A/B.
- II.3.3 Normal PM & Maintenance repair for Laboratory \$52 included escalation UMSK.

### **III.4 SHE-Q**

The SHE-Q Department budget \$156 for normal maintenance repair and for periodic maintenance of the Multipurpose Incinerator.

## IV. Special Programs

### IV.1 Reliability Programs

- III.1.1 Overhaul Loading Arms LD#1 (>10 years in service) \$5,500.  
The overhaul interval is 8-10 years based on Manufacturer Recommendation, last overhaul was in 2003.
- III.1.2 Upgrade Controller & Gear Box replacement balancing machine \$400. To Improve the Reliability of Balancing Machine to support repair process of rotating equipment.
- III.1.3 LNG Plant Systematic Asset Management Using Reliability Tools (Pilot Project on Train H) \$200. Develop and Implement LNG Plant Reliability Model/System in order to have quantitative and qualitative measurement to Maximize Equipment Availability, Enhance Plant Performance, Reduce Maintenance Expense, Optimize Spare Parts, Reduce Risks and Comply with Regulations. In year 2013, Implementation will be on Train H only as the Pilot Project.
- III.1.4 Overhead Crane Assessment (All Area) \$150. Perform assessment and evaluation of Cranes (especially the Overhead Cranes) which has been obsolete in the spare parts and experiences repetitive problems.
- III.1.5 RCM and RAM Analysis Plant 31 and 32 \$150. Establish detail reliability analysis using RCM and RAM approaches for Plant 31 and 32.
- III.1.6 Mechanical Integrity (MI) Document Update Phase 1 \$100.  
To update current MI document which was last updated in 2003. ISRS-8 requires updated the SOP (Including MI Document) and other related document every 3 years.
- III.1.7 Maintenance Procedure Review (All Craft) \$100  
Review and update current maintenance procedures in all craft including format/content to be in line with Reliability Target.
- III.1.8 Replace fabric expansion joint of flue gas duct Boiler Module I \$50.  
To replace the damaged/leaking fabric expansion bellow in Module I Boiler to increase the reliability and availability of Module-I Boilers.
- III.1.9 Reliability Workshop \$50. Socialization of reliability concept and target related to plant reliability issues based on People Improvement Program as the part of Reliability Program Campaign.
- III.1.10 Reliability Dashboard \$50.  
Develop Online Reliability Executive Summary for Management Information System related to Reliability Parameters, such as PRF, PRUR, Equivalent Loss of Cargoes, Maintenance Cost Spending, etc.
- III.1.11 Upgrade Mechanical Governor for Main Lube Oil Pump (MLOP) Turbine Driver of 31-PT-2/3/4 \$50. To upgrade the obsolete mechanical governor of MLOP turbine driver. The replacement will use the hydraulic governor type (TG-13) including brackets.
- III.1.12 1 Unit of Gland Steam Condenser \$30.  
To have a spare unit due to repetitive problem (leakage) of gland steam condenser for Reliability improvement.
- III.1.13 1 Unit of Four way Valves lube oil system of Trains 4K-1/2/3 (CS to SS) \$30. To have a spare unit (upgrade from CS to SS Material) due to repetitive problem

- (passing/leakage) of four way valve of lube oil system for Reliability improvement.
- III.1.14 Install non metallic pipe shoe Plant 38 \$30.  
To Improve Reliability of Plant 38 by preventing corrosion on intersection of piping and support in HC line.
- III.1.15 Corrosion and Painting Survey in All Plant (reliability Program) \$250.  
Follow up of corrosion survey Recommendation from Inspection Section.
- III.1.16 Inspect FRP underground CW line in Train area (reliability Program) \$100.  
Inspect of underground flange joint as follow up of water leaking problem on Train C/D.
- III.1.17 Repair Conductivity meter \$52. To shift budget by purchasing PH meter in order to follow up the PROPER recommendation by online monitoring PH reading on Plant 48.
- III.1.18 Cap & Plugs at all location (Safety issue, reliability Program) \$50  
As the Follow up of Insurance and ISRS recommendation.

#### **IV.2 Plant Inspection**

- III.2.1 4 years Spring Support surveys all Plants \$33. Regular inspection as per Long term inspection program.
- III.2.2 NDT & Radiography Examination 2012-2014 \$115. To cover radiographic and NDT activity for plant inspection and QC.
- III.2.3 SKPP Fisik PV & HE Module 2 & S/L \$75. Government regulation as Migas requirement every 3 years.
- III.2.4 Inspectors for Shutdown Tr A/F/G \$70. To cover inspector shutdown for Train A/F/G SD Activity.
- III.2.5 Eddy Current test for G4-E-1A/B, G4-E-5 A/B, G4E-6 A/B \$67. To cover eddy current inspection during Train D SD as per Long term inspection program.
- III.2.6 SKPP Fisik - Cranes (All Crane, included Gondola & Lift) \$37. Government regulation as per Migas requirement every 3 years and Dehnaker Regulation.

#### **IV.3 Plant Equipment Recertification**

- III.3.1 SKPI all Plant \$128. Government regulation as per Migas requirement every 3 years.
- III.3.2 SKPP Audit & Fisik Rotating all plant \$121. Government regulation as per Migas requirement every 3 years.
- III.3.3 SKPP Audit PV & HE Module 2 & S/L \$87. Government regulation as per Migas requirement every 3 years.
- III.3.4 Biennial Boiler Shutdown \$71. Government regulation as per UU Uap requirement every 2 years.
- III.3.5 SKPP Audit+ Fisik Electric Module 2 \$50. Government regulation as per Migas requirement every 3 years.
- III.3.6 SKPP Audit Crane All Area \$30. Government regulation as per Migas requirement every 3 years.
- III.3.7 Recertification Tug Boats, Mooring Boat, Patrol Boat(New), New Tug Boat, Class Survey BKI & Sea Worthiness \$30.
- III.3.8 Migas Inspector for PSV \$26. Government regulation as per Migas requirement.

**PROPOSED ORIGINAL BUDGET 2013**

2. Community Maintenance \$4,833 shows an increase \$30 (0.6%) mainly due to cover inflation for material.

	Original Budget 2013	Revised Budget 2012	Var. Over/ Under \$      %
<b>Routine &amp; Preventive Maintenance</b>			
1 Routine Repair & Prev.Maintenance	2,579	2,517	62      2
2 Grass cutting/ground keeping	969	945	24      3
3 North Buffer zone area	390	374	16      4
4 Lift Station Maint.	46	47	(1)      (2)
5 Mobile Equipment Routine Repair and PM LV	585	570	15      3
<b>Sub Total I</b>	<b>4,569</b>	<b>4,453</b>	<b>116</b> <b>3</b>
<b>Work Programs</b>			
1 Replace Floor tile of SMP, SMU YPVDP building	59	-	59      100
2 Roof Improvement for PC 6 Project	73	75	(2)      (2.7)
3 AC Windows replacement at Fasum,Office and Houses (Phase III)	49	60	(11)      (18.3)
4 Repaint Roof & Ext/Intr wall Services Dept Bldg	59	-	59      100
5 Roof & Accoustic ceiling replacement at m/Hall TC	24	-	24      100
6 Ditch Improvement for PC 6 Millenium	-	50	(50)      (100)
7 Roof & Floor Improvement for North Bufferzone	-	45	(45)      (100)
8 Repaint Exterior wall at PKB & Chatolic Chuch	-	20	(20)      (100)
9 Repair Guest House Phase II (Lobby,Kitchen,Room Cluster A/B)	-	100	(100)      (100)
<b>Sub Total II</b>	<b>264</b>	<b>350</b>	<b>(86)</b> <b>(25)</b>
<b>TOTAL COMMUNITY RELATED</b>	<b>4,833</b>	<b>4,803</b>	<b>30</b> <b>0.6</b>

**Services \$8,933 – increase of \$2,548 (39.9%)**

1. Equipment Rental/Leases/Charter of \$8,326 shows an increase \$2,552 (44.2%) mainly due to higher cost for Tug Boat Charter \$2,475, Rental Vehicle \$57, Others Rental \$31 and Office Equipment Rental \$4. These were partly offset by under run due to Office/Storage Rental \$15.

**Contract Services \$27,619 – increase of \$3,794 (15.9%)**

**PROPOSED ORIGINAL BUDGET 2013**

1. Computer Services of \$1,383 shows an increase \$613 (79.6%) mainly due to Annual Maintenance Support of Oracle.  
The breakdown consists of:

	OB2013	RB2012	( Under )	Variance
				Over/ Under
A. Annual Technical Maint Service (75101)				%
1 Technical Maintenance service PC & periperal	94	57	37	64.9
2 Technical Maintenance service for 30 server	243	243	-	-
	<b>337</b>	<b>300</b>	<b>37</b>	<b>12.3</b>
B. Annual Technical Support (75103)				
1 ATS ORACLE Server Database	96	125	(29)	(23.2)
2 ATS for Tivoli (back up IBM)	75	-	75	100
3 ATS for Oracle Application	215	345	(130)	(37.7)
	<b>386</b>	<b>470</b>	<b>(84)</b>	<b>(17.9)</b>
c. AMS-Annual Maintenance Support (ATS Application)				
	<b>660</b>	-	<b>660</b>	<b>100</b>
	<b>660</b>	-	<b>660</b>	<b>100</b>
<b>Total</b>	<b>1,383</b>	<b>770</b>	<b>613</b>	<b>79.6</b>

2. Pipeline Maintenance of \$7,447 shows an increase \$3,024 (68.4%) mainly due to VAT POMA and Penalty \$3,024.

The breakdown consists of:

<u>Description</u>	OB2013	RB2012	Variance	
			Over/ Under	%
<b>A. OPEX</b>				
<u>Direct Costs:</u>				
- Routine Operations (Ops, Maint, Insp)	325	325	0	0
- Intelligent Survey Inspection	372	372	0	0
- Project Work	293	293	0	0
Total Direct Costs	<b>990</b>	<b>990</b>	<b>0</b>	<b>0</b>
<u>Common Costs:</u>				
- Other Maintenance Programs	946	946	0	0
- Road and ROW Maintenance	796	796	0	0
- Project Work OPEX	219	219	0	0
Total Common Costs	<b>1,961</b>	<b>1,961</b>	<b>0</b>	<b>0</b>
<u>Shared Costs:</u>				
- Routine Services	1,136	1,136	0	0
Total Shared Costs	<b>1,136</b>	<b>1,136</b>	<b>0</b>	<b>0</b>
<u>Overhead Costs:</u>				
- Overhead Common & Shared Costs	283	283	0	0
- VAT POMA and Penalty	3,024	0	3,024	100
Total Overhead Costs	<b>3,307</b>	<b>283</b>	<b>3,024</b>	<b>1,069</b>
Sub Total OPEX	<b>7,394</b>	<b>4,370</b>	<b>3,024</b>	<b>69</b>
<b>B. CAPEX</b>				
- Commont Cost	48	48	0	0
- Over Head	5	5	0	0
Sub Total CAPEX	<b>53</b>	<b>53</b>	<b>0</b>	<b>0</b>
Total Pipeline Work Program	<b>7,447</b>	<b>4,423</b>	<b>3,024</b>	<b>68</b>

**PROPOSED ORIGINAL BUDGET 2013**

3. Service Orders of \$2,834 shows a decrease \$250 (8.1%) mainly due to lower for special program \$295 and Technical Review Meeting \$50. These were partly offset by higher cost for BOC, BOD and Stakeholder Management \$95.

The breakdown of the costs is as follows:

<u>No.</u>	<u>DESCRIPTION</u>	<u>OB 2013</u>	<u>RB 2012</u>	<u>Var</u>
<b><u>Service Orders - Manufacturing Division</u></b>				
<b><u>Vendor Rep. Trouble Shooting (75401):</u></b>				
1	Sample Delivery Fee	3	5	(2)
2	Vendor Free Visit	27	25	2
		<b>Sub Total</b>	<b>30</b>	<b>30</b>
				<b>0</b>
<b><u>Special Programs (75403):</u></b>				
3	Fire Protection Assessment	0	150	(150)
4	Study Plant-1 Performance by BASF	50	0	50
5	PTAI LNG Bench Marking	30	200	(170)
6	BSO-Failure Analysis	50	75	(25)
		<b>Sub Total</b>	<b>130</b>	<b>425</b>
				<b>(295)</b>
<b>Total Service Orders Manufacturing Div:</b>		<b>160</b>	<b>455</b>	<b>(295)</b>
7	Technical Review Meeting (TRM-Domestic)	100	150	(50)
8	BOC, BOD, Audit Committee & Stakeholder Management	1,707	1,612	95
<b><u>Producers Assistance (75404)</u></b>				
9	TOTAL Seconded/Employees	867	867	0
<b>Total Service Orders</b>		<b>2,834</b>	<b>3,084</b>	<b>(250)</b>

**PROPOSED ORIGINAL BUDGET 2013**

4. General Contract Services of \$14,609 shows an increase \$443 (3.1%) mainly due to higher cost for Long Term and Other Contract Service \$528, University-MOU-Tech.Serv \$120, Office Cleaning \$19, Insect & control \$4, Government agency \$2 and Mail/Courier Services \$1. These were partly offset by under run due to Special Program/Consultant \$227 and Recertification \$4.

The breakdown of the costs is as follows:

	OB 2,013	RB 2012	Variance \$      %
<b>Special Work Programs/Activities :</b>			
<b>New Work Programs/ Activities</b>			
1 Recruiting Program	88	-	88 100
3 Oracle Enhancement	49	-	49 100
4 Revisi PP Guide & SOP	10	-	10 100
<b>Sub Total</b>	<b>147</b>	<b>-</b>	<b>147 100</b>
<b>Continuous Work Programs/ Activities</b>			
5 Establish LNG Academic	292	300	(8) (3)
6 PMI DOCK II VS Dock I	58	40	18 45
7 Drill & Exercise ISPS Code	39	35	4 11
8 GCG External Assessment	49	30	19 63
9 Hazops Train E & F VS Train ABCD, Utilities I & Storage & Loading	49	90	(41) (46)
10 Biaya Assessment 34 Manager & 75 Supv	68	60	8 13
11 Public Accountant & Auditors	78	91	(13) (14)
12 Salary Survey of Regional Base & Jakarta and Executive	18	18	- -
13 ISO 9001 : 2008 Recertification & EMS ISO 14001 : 2004 Surveillance	18	18	- -
14 PROPER and Earth Day	54	55	(1) (2)
15 ISRS-8 OMEGA Assessment	97	100	(3) (3)
16 Integrated SHE-Q MS	34	35	(1) (3)
17 Migas Audit	10	10	- -
18 Aviation Safety Advisor (ASA)	141	145	(4) (3)
19 EAP (Empl. Asst. Program)	19	29	(10) (34)
20 Knowledge Management System	29	50	(21) (42)
21 EPDP	252	280	(28) (10)
22 Fugitive Analyst, biodiversity Programs	13	13	- -
23 Develop SOP (Phase III) & Work Instruction for PM & PDM Fire System	-	45	(45) (100)
24 Market Price Survey & Price Updating	-	20	(20) (100)
25 Contract for Creating SOP PRF Report and PODS System	-	20	(20) (100)
26 Contract of Equipment Critical Rating (ECR), Equipment Hierarchy & Failure Mapping-Phase 1	-	100	(100) (100)
27 HRD Blue Print (Updated)	-	55	(55) (100)
28 SMK3 (OHSAS 18001)	-	20	(20) (100)
29 To Create Environment Control Booklet for Environment Control Promotion	-	12	(12) (100)
30 Penerbitan Sertifikat operasi Bandar Udara PT Badak Bontang	-	21	(21) (100)
<b>Sub Total</b>	<b>1,318</b>	<b>1,692</b>	<b>(374) (22)</b>

**PROPOSED ORIGINAL BUDGET 2013**

		<b>OB</b>	<b>RB</b>	<b>Variance</b>	
		<b>2,013</b>	<b>2012</b>	<b>\$</b>	<b>%</b>
31	Office Cleaning Services	1,456	1,437	19	1
32	Insect & Pest Control	284	280	4	1
	<b>Sub Total</b>	<b>1,740</b>	<b>1,717</b>	<b>23</b>	<b>1</b>
	<b><u>Plant Equipment Recertification</u></b>				
33	ISO 17025 Surveillance & Consultant	8	12	(4)	(33)
	<b>Sub Total</b>	<b>8</b>	<b>12</b>	<b>(4)</b>	<b>(33)</b>
34	Hazardous Waste Treatment & Disposal Handling (Vol 500 ton)	97	100	(3)	(3)
35	Legal Operational Assistance & Expenses	78	75	3	4
36	Mail/Courier Service	47	46	1	2
37	Government Agency for Harbor	12	10	2	20
	<b>Sub Total</b>	<b>234</b>	<b>231</b>	<b>3</b>	<b>1</b>
	<b><u>Various Lumpsum Contracts</u></b>				
38	Hearing Conservation Program	49	50	(1)	(2)
39	Bio monitoring health hazard	15	15	-	-
40	Trainee Management Program	146	190	(44)	(23)
41	Health Education Program	10	16	(6)	(38)
42	Security Service Fee (213 Empl.)	1,778	1,400	378	27
43	Contract Crew Tug Boat and Patrol Boat (base on actual contract)	894	909	(15)	(2)
44	CSMS Program Non Production Division	152	150	2	1
45	Maintenance and Service for Web Application (Contract Programmer)	76	75	1	1
46	Programmer Analyst	71	70	1	1
47	Contract for Lab. Analyst (15 Empl.)	57	56	1	2
48	Driver for Shuttle Office	101	100	1	1
49	Library & Filing renovation building	-	23	(23)	(100)
50	Various Lumpsum Contract & Others	7,433	7,200	233	3
	<b>Sub Total</b>	<b>10,782</b>	<b>10,254</b>	<b>528</b>	<b>5</b>
	<b><u>M.O.U. - Universities</u></b>				
51	MOU-Universitas	248	0	248	100
52	MOU-SOP, Tech.Services, etc	54	50	4	8
53	Conduct Environmental Monitoring	78	80	-2	-3
54	MOU-Universitas	-	100	(100)	(100)
55	Studies with LAPI/ITB/ITS - Consultant Service for structure assesment for JETTY DOCK I and area modul I	-	30	(30)	(100)
	<b>Sub Total</b>	<b>380</b>	<b>260</b>	<b>120</b>	<b>46</b>
	<b>Total Other Contract Services</b>	<b>14,609</b>	<b>14,166</b>	<b>443</b>	<b>3.1</b>

**Other Expenses \$10,628 - increase of \$985 (10.2%)**

1. Community Development of \$1,251 shows a decrease of \$33 (2.6%).  
The breakdown is:

NO.	DESCRIPTION	OB 2013	RB 2012	Variance Over/ Under	
				\$	%
1	COMMUNITY DEV.- EDUCATION	383	367	16	4.4
2	COMMUNITY DEV.- INFRA STRUKTUR	80	75	5	6.7
3	COMMUNITY DEV.- RELIGIUS	124	106	18	17.0
4	COMMUNITY DEV.- SOCIETY EMPOWERMENT	428	373	55	14.7
5	COMMUNITY DEV.- SPORT, ART AND CULTURE	74	60	14	23.3
6	STAKEHOLDERS MANAGEMENT	93	232	(139)	(59.9)
7	COMDEV SOCIETY HEALTH	35	36	(1)	(2.8)
8	COMMUNITY RELATION AFFAIRS	34	35	(1)	(2.9)
<b>TOTAL COMMUNITY DEVELOPMENT</b>		<b>1,251</b>	<b>1,284</b>	<b>(33)</b>	<b>(2.6)</b>
		=====	=====	=====	=====

2. Insurance of \$2,535 shows an increase of \$186 (7.9%) mainly due to cover for Plant & Property insurance \$186 (7.9%) based on market survey.
3. Taxes of \$2,372 shows a decrease of \$136 (5.4%) mainly due to lower cost for Corporate Tax \$136.
4. Miscellaneous of \$1,890 shows an increase of \$944 (100.1%) mainly due to safety reward for 50 Million safe working hour program \$686, PKB VII \$145 and PTB as host for LNG Borneo \$113.

**Recoveries & Allocations \$3,371 - increase of \$923 (37.7%)**

1. Regular recoveries of \$1,117 shows an increase of \$93 (9.1%) mainly due to higher receipt recoveries from allocation for Pertamina reimbursement of VAT late payment penalty \$93.
2. Non Regular Recoveries of \$1,299 shows an increase of \$542 (71.6%) mainly due to higher receipt recoveries for on the job Training \$542.
3. Allocations of \$955 shows an increase of \$288 (43.2%) mainly due to higher receipt for allocation work orders \$288.

**PROPOSED ORIGINAL BUDGET 2013**  
**SUMMARY OF CAPITAL EXPENDITURES**  
(In Thousand of US Dollars)

<u>Category</u>	Original Budget 2013	Revised Budget 2012	Variance Over/ (Under)	Prior Year Cost	Carry Over Cost	Total Project Forecast
<b>Tier I Expenditures</b>						
<b>US\$ 50 or More</b>						
- Carry Forward	-	-	-	-	-	-
- Current Year	3,301	2,769	532	-	-	3,301
- New Projects, Purchase	-	50	(50)	-	-	-
<b>Minor Projects (US\$50 or Less)</b>						
- Carry Forward	-	-	-	-	-	-
- Current Year	345	283	62	-	-	345
- New Projects, Purchase	-	20	(20)	-	-	-
<b>Total Tier I</b>	<b>3,646</b>	<b>3,122</b>	<b>524</b>	<b>-</b>	<b>-</b>	<b>3,646</b>
<b>Tier II Expenditures</b>						
- Carry Forward	4,589	1,268	3,321	1,122	-	5,711
- Current Year / New Projects	985	1,122	(137)	-	2,188	3,173
<b>Total Tier II</b>	<b>5,574</b>	<b>2,390</b>	<b>3,184</b>	<b>1,122</b>	<b>2,188</b>	<b>8,884</b>
<b>Tier III Expenditures</b>						
- Carry Forward	7,238	14,326	(7,088)	2,652	2,950	12,840
- Current Year / New Projects	553	20	533	-	3,460	4,013
<b>Total Tier III</b>	<b>7,791</b>	<b>14,346</b>	<b>(6,555)</b>	<b>2,652</b>	<b>6,410</b>	<b>16,853</b>
<b>Owner Cost Project</b>						
- Current Year / New Projects	465	700	(235)	-	-	465
<b>Total Owner Cost</b>	<b>465</b>	<b>700</b>	<b>(235)</b>	<b>-</b>	<b>-</b>	<b>465</b>
<b>Total Capital Expenditures</b>	<b>17,475</b>	<b>20,558</b>	<b>(3,083)</b>	<b>3,774</b>	<b>8,598</b>	<b>29,847</b>

**PROPOSED ORIGINAL BUDGET 2013**

**PROPOSED ORIGINAL BUDGET 2013**  
**TIER I NEW PROJECTS**  
 (In Thousands of Dollars)

No.	AFE No.	Title	<u>Dept</u>	Qtr	Qtr	Qtr	Qtr	Original	Prior	Carry	Total			
				1	2	3	4	Budget 2013	Year Cost	Over Cost	Project Cost			
<b>US\$ 50 or More</b>														
<b>Current Year Purchase</b>														
1	411131XX	Excavator Mounted Vibrator Additional	Maint	-	-	75	-	75	-	-	75			
2	411131XX	Gondola Suspended Scaffold (1 unit) Additional	Maint	-	-	-	122	122	-	-	122			
3	411132XX	Multi Operator Welding Machine (1 unit) Replacement	Maint	-	-	-	50	50	-	-	50			
4	411132XX	Insulation Diagnostic Tester (1 unit) Replacement	Maint	-	-	150	-	150	-	-	150			
5	411132XX	Magnetic Particle Inspection Equipment (1 unit) Replacement	Maint	-	-	-	200	200	-	-	200			
6	411132XX	Compact Tractor (1 unit) Replacement	Maint	-	-	-	125	125	-	-	125			
7	411132XX	Continuous Emission Monitoring Replacement	Maint	-	-	-	150	150	-	-	150			
8	411132XX	Speed Controller Train G Refrigerant Compressor (5 units)	Maint	-	-	150	-	150	-	-	150			
9	411132XX	Boiler Controller Replacement	Maint	-	-	-	100	100	-	-	100			
10	411132XX	Gas Chromatograph (3 units) Replacement	Maint	-	-	390	-	390	-	-	390			
<b>Sub Total</b>														
				-	-	765	747	1,512	-	-	1,512			
11	411132XX	Security Master Plant SMP (4 units) Replacement	IT	-	-	50	-	50	-	-	50			
12	411132XX	Marine & Aviation Radio (1 set) Replacement	IT	-	-	50	-	50	-	-	50			
13	411132XX	Integrated Monitoring Communication System of HMCS-EOCC-MST	IT	-	-	-	100	100	-	-	100			
<b>Sub Total</b>														
				-	-	100	100	200	-	-	200			
14	411132XX	Engine Speed Boat (6 units) replacement	Serv	-	-	-	111	111	-	-	111			
15	411132XX	Pick Up 4x2 Diesel (3 units) Replacement	Serv	-	-	-	63	63	-	-	63			
16	411132XX	Station Wagon Diesel (6 units) Replacement	Serv	-	-	-	164	164	-	-	164			
17	411132XX	Minibus 10 seat for Shuttle Airport (2 units) Replacement	Serv	-	-	-	70	70	-	-	70			
18	411132XX	Micro Bus AC (3 units) Replacement	Serv	-	-	-	432	432	-	-	432			
19	411132XX	Big Bus AC (4 units) Replacement	Serv	-	-	-	658	658	-	-	658			
20	411132XX	Ground Power Electric Airport (1 unit) Replacement	Serv	-	-	-	92	92	-	-	92			
<b>Total Current Year US\$ 50 or More</b>														
				-	-	865	2,436	3,301	-	-	3,301			
<b>Total Minor Projects (US\$50 or Less)</b>														
				-	-	132	213	345	-	-	345			
<b>Total Tier I</b>														
				-	-	997	2,649	3,646	-	-	3,646			

**PROPOSED ORIGINAL BUDGET 2013**  
**DESCRIPTION OF TIER I – NEW PROJECTS**  
(In Thousands of US Dollars)

**US\$50 or More**

**1. Excavator Mounted Vibration - \$75.**

It is proposed to purchase 1 unit Excavator Mounted Vibrator; the Excavator Mounted Vibrator is required for supporting landslide and piling job. The existing machine in service since 1996 has been broken and could not be repaired due to obsolete. For the time being this tool is provided by the contractor however, the quality does not meet with PT Badak standard. By purchasing this tool, it will comply with PT Badak standard.

**2. Gondola Suspended Scaffold - \$122.**

It is proposed to purchase 1 unit Gondola Suspended Scaffold. The Gondola / Suspended Scaffold are purchased to support cleaning, sandblasting, painting and other works that are at high altitude. We currently have one pair but not enough to support the work. Formerly, this tool is provided by the contractor however, the quality did not meet with PT Badak standard. By purchasing this tool, it will comply with PT Badak standard.

**3. Replacement of Multi Operator Welding Machine - \$50.**

It is proposed to purchase 1 (one) unit Multi Operator Welding Machine. The existing Rectifier Welding Machine (Multi Operator Welding Machine) which has been running since 1977 is in bad condition and could not be repaired. We propose purchasing 1 (one) Rectifier Welding Machine (same size existing) to replace the above damage machine.

**4. Replacement of Insulation Diagnostic Tester - \$150.**

It is proposed to purchase 1 (one) unit Insulation Diagnostic Tester to replace the old one that was damaged and cannot be repaired.

The tool is used to assess the current condition of critical power apparatus insulation on regular Preventive Maintenance Task for Power Cable, Generator, Motor and Transformer. Without this tool, condition of power apparatus insulation cannot be assessed and evaluated whether the insulation is good condition or not. Furthermore, the insulation condition for critical power apparatus cannot be monitored, where the impact can be suddenly short circuit and disturb process area (if the equipment support to the process area) and the equipment will stop for long period due to insulation damage or broken as a result no insulation diagnostic to assess critical power apparatus insulation.

**5. Replacement of Magnetic Particle Inspection Equipment - \$200.**

It is proposed to purchase 1 (one) unit Magnetic Particle Inspection Equipment to replace the broken one that has been used since 1988.

The Magnetic Particle Inspection Equipment is use for supporting the M&HE shop works for inspecting the machine parts to indicate defective, crack, quality of welding that is considered critical(eq. rotor turbine, pump, compressor, etc.).

**6. Replacement of Compact Tractor - \$125.**

It is proposed to purchase 1 (one) unit compact tractor to replace the old one that has been used since 1982 and now in bad condition.

This Compact Tractor is proposed to support daily Maintenance activities and especially during train shutdown.

7. **Replacement Continuous Emission Monitoring** - \$150.

It is proposed to purchase Continuous Emission Monitoring to replace the existing CEM unit of Boiler 30 Module 2 that has experienced out of service due to component failure. In addition, this equipment is required for PROPER and ISO 14001 compliance.

8. **Speed Controller Train G Refrigerant Compressor (5 units)** - \$150

It is proposed to replace the turbine speed controller for fuel gas compressors 2K-1/2 and refrigerant compressors 4K-1/2/3 during Train G shutdown. Since these compressors are critical on LNG production, periodic replacement of steam turbine speed control is required on each shutdown to ensure operational availability of these equipments. Meanwhile, since the existing type (Woodward old-style 505) is already obsolete, it is required to replace with new type (Woodward 505 Enhanced) with some modification at local enclosure and wiring.

The work scopes of this project are as follows:

- Detail engineering design.
- Procurement of new type of turbine speed controller for refrigerant and fuel gas compressors Train G.
- Install new type of turbine speed controller for refrigerant and fuel gas compressors Train G.

This project should be executed during next Train G shutdown scheduled on May 2013.

9. **Replacement Boiler Controller** - \$100

It is proposed to replace existing single loop boiler controller modules for 31F26-31F30 because the existing controller modules (type YS-80) which installed since 2001 has already been obsolete and the service support has been discontinued since 2008. The controllers are required to control fuel gas pressure, fuel gas flow, BFW flow, air flow, and total required is 6 ea per boiler. Currently, the existing controller modules are operating without spare part and potentially reduce LNG production if failure occurred on these modules.

The work scopes of this project are as follows:

- Detail engineering design.
- Procurement of 36 ea new single loop controller modules (type YS-1000) for boiler 31F26-31F30.
- Install new single loop controller modules at 31F26-31F30.

This project should be completed on 2013.

10. **Gas Chromatograph** - \$390

It is proposed to purchase 3 units Gas Chromatograph to replace the existing the original Gas Chromatograph installed since 1997 at Train G had obsolete already and need to be replaced with the latest version one. Please notice the part and service support was discontinued since 2006.

11. **Replacement of Security Master Plan (SMP) Equipments (4 units)** - \$50

It is proposed to purchase 4 (four) units CCTV of Security Master Plant system to replace the old ones that have been operated since 2005 and now are in bad condition and not reliable used.

**12. Replacement of Marine & Aviation Radio (1 set) - \$50**

It is proposed to purchase 1(one) set Marine & Aviation Radio to replace the broken one after striking by lightening. In addition, the old one has been operated since 2005.

This equipment is required for support coastal station activity to communicate with LNG vessel and ATC operator to airplane pilot at PT.Badak Airport.

**13. Remote Hazard Monitoring & Integrated Comm. System for MECC-EOCC-MST - \$100**

It is proposed to purchase Integrated Monitoring Communication System of HMCS-EOCC-MST for emergency response, information from hazard monitoring system and integrated communication between MECC-MST and OECC are needed to assist management team making decisions accurately and quickly.

**14. Replacement of Engine Speed Boat (6 units) - \$111**

It is proposed to purchase 6 (six) unit of speedboats engines to replace the old ones that have been used since 1998 and now are broken, uneconomically repaired and obsolete.

The speedboat mostly used to support marine patrol, buoy inspection, carrying maintenance tools repairing cooling water and loading dock.

**15. Replacement Pick Up 4x2 Diesel (3 units) - \$63**

It is proposed to purchase 3 units Pick Up 4x2 Diesel to replace the existing units has been used since 1993 (2 units) and 2000 (13 units). Uneconomical to repair and technically unfit for safety. This diesel vehicle to support operation in zone I.

**16. Replacement Station Wagon Diesel (6 units) - \$164**

It is proposed to purchase 6 units Station Wagon Diesel to replace the existing units has been used since 1992 (1 unit) and 1993 (12 units). Uneconomical to repair and technically unfit for safety. This diesel vehicle support operation in zone I.

**17. Replacement Mini Bus 10 seat for Shuttle Airport (2 units) - \$70**

It is proposed to purchase 2 units Mini Bus for Shuttle Airport to replace the existing bigger capacity to save time during shuttle service. The existing capacity is only for 5 seats. Condition of cars area not appropriate.

**18. Replacement Micro Bus AC (3 units) - \$432**

It is proposed to purchase 3 units Micro Bus AC to replace the existing units has been used since 1989 (1 unit) and 1990 (2 units). Condition not appropriate, obsolete and technically not fit to safety aspect. Uneconomically to repair, will be junked soon after new buses arrive.

**19. Replacement Big Bus AC (4 units) - \$658**

It is proposed to purchase 4 units Big Bus AC to replace the existing units has been used since 1989 (22 years). Condition not appropriate, obsolete and technically not fit to safety aspect. Uneconomically to repair, will be junked.

**20. Replacement Ground Power Electric Airport (1 unit) - \$92**

It is proposed to replace 1 unit Ground Power Electric Airport to replace the existing unit has been used since 1985 and in broken condition. Obsolete and no spare part available, uneconomical to repair. This unit is for Aircraft Engine Start up.

**PROPOSED ORIGINAL BUDGET 2013**

**PROPOSED ORIGINAL BUDGET 2013**

**TIER II PROJECTS**

(In Thousands of Dollars)

Rate 9300 Per USD

No.	<u>AFE No.</u>	<u>Title</u>	<u>Dept</u>	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Original Budget 2013	Prior Year Cost	Carry Over Cost	Total Project Cost
<b>Carry Forward</b>											
1	42012201	WW501 at 31-PG-10/13/14 Replacemnet	Tech	6	29	240	300	575	50	-	625
2	42012202	Fire Detector System at Guest House, Mass hall and Apartement Building	Tech	15	130	157	35	337	33	-	370
3	42012203	Fire Protection & Detection System in Transmitter and PABX Room at communication Building.	Tech	8	52	95	20	175	25	-	200
4	42012204	35K-3/4/5/6 Air Compressor Control System Replacement at Utilities II	Tech	10	45	105	340	500	10	-	510
5	42012207	Retrofit Obsolete Cordless System at Dock-2 and Install Cordless System at Dock-1	Tech	6	40	320	44	410	10	-	420
6	42012208	Yokogawa Centum CS HMI Retrofit at Utilities II	Tech	18	36	480	310	844	56	-	900
7	42012209	HMI and SOE Honeywell Plant scape Replacement at Train-C/D/E	Tech	4	28	170	22	224	41	-	265
8	42012211	Fire Protection System at Fuel Gas KOD 31C-23/28	Tech	10	35	120	25	190	10	-	200
<b>Sub Total</b>				77	395	1,687	1,096	3,255	235	-	3,490
9	42012210	Fire water Pumps realibility Improvement	SHEQ	12	15	320	84	431	69	-	500
10	42012206	Roof & Concreate Deck Improvement at Al-Kautsar Mosque	Proj	10	48	106	56	220	30	-	250
11	42012205	Main Warehouse Roof Replacement Phase II	Maint	22	120	145	63	350	10	-	360
12	42012212	PT.Badak Land Certification	Legal	80	30	40	183	333	778	-	1,111
<b>Total Carry Forward</b>				201	608	2,298	1,482	4,589	1,122	-	5,711

No.	<u>AFE No.</u>	<u>Title</u>	<u>Dept</u>	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Original Budget 2013	Prior Year Cost	Carry Over Cost	Total Project Cost
<b>Current Year</b>											
1	420132XX	VTMS 7200 (35K-3 & 15K-1) Replacement	Maint	-	-	25	25	50	-	150	200
2	420132XX	Radial Drill Machine (1 unit) Replacement	Maint	-	-	-	200	200	-	150	350
3	420132XX	FAMS for PSF & Community Area Replacement	Maint	-	-	10	10	20	-	130	150
4	420132XX	Dry Chemical in 24D-6 Replacement	Maint	-	-	10	10	20	-	130	150
<b>Sub Total</b>				-	-	45	245	290	-	560	850
5	420132XX	MP-LP Steam Letdown Station at Train G & H Utilities II	Opt	-	2	3	10	15	-	125	140
6	420132XX	Cable 48FDR-18/28 Additional	Opt	-	10	10	20	40	-	330	370
7	420132XX	Triple Egent Fire Truck With Mercedes Benz	Opt	-	-	-	400	400	-	550	950
<b>Sub Total</b>				-	12	13	430	455	-	1,005	1,460
8	420132XX	Emergency Stair at SD Vidatra	Tech	-	5	10	10	25	-	18	43
9	420132XX	UPS 37-PU-1 Replacement at Radio Room	Tech	-	5	5	10	20	-	150	170
10	420132XX	Pre-Heater Additional in Regeneration Gas Circuit to Reduce High Pressure Steam Consumption	Tech	-	45	50	100	195	-	455	650
<b>Sub Total</b>				-	55	65	120	240	-	623	863
<b>Total Current Year</b>				-	67	123	795	985	-	2,188	3,173
<b>Total Tier II</b>				201	675	2,421	2,277	5,574	1,122	2,188	8,884

**PROPOSED ORIGINAL BUDGET 2013**  
**DESCRIPTION OF TIER II – CARRY FORWARD**  
(In Thousands of US Dollars)

**1. WW501 at 31-PG-10/13/14 Retrofit - \$575**

The detailed engineering design is expected to be completed in July 2012. Deliveries of all procurement items are expected to be arrived by March 2013. The construction contract is scheduled to be awarded in March 2013 and start in April 2013. The overall completion is targeted by 4<sup>th</sup> quarter 2013. The total funding for this project will remain the same as per the approved AFE budget i.e. \$625.

**2. Fire Detection System at Guest House, Messhall and Apartment Building - \$337**

The detailed engineering design was completed. Deliveries of all procurement items are expected to be arrived by February 2013. The construction contract is scheduled to be awarded in February 2013 and start in March 2013. The overall completion is targeted by 4<sup>th</sup> quarter 2013. The total funding for this project will remain the same as per the approved AFE budget i.e. \$370.

**3. Fire Protection & Detection System in Transmitter and PABX Room at Communication Building - \$175**

The detailed engineering design is expected to be completed in August 2012. Deliveries of all procurement items are expected to be arrived by March 2013. The construction contract is scheduled to be awarded in March 2013 and start in April 2013. The overall completion is targeted by 4<sup>th</sup> quarter 2013. The total funding for this project will remain the same as per the approved AFE budget i.e. \$200.

**4. 35K-3/4/5/6 Air Compressor Control System Retrofit at Utilities II - \$500**

The detailed engineering design is expected to be completed in September 2012. Deliveries of all procurement items are expected to be arrived by April 2013. The construction contract is scheduled to be awarded in April 2013 and start in May 2013. The overall completion is targeted by 4<sup>th</sup> quarter 2013. The total funding for this project will remain the same as per the approved AFE budget i.e. \$510.

**5. Retrofit Obsolete Cordless System at Dock-2 and Install New Cordless System at Dock-1 - \$410**

The detailed engineering design is expected to be completed in August 2012. Deliveries of all procurement items are expected to be arrived by April 2013. The construction contract is scheduled to be awarded in April 2013 and start in May 2013. The overall completion is targeted by 4<sup>th</sup> quarter 2013. The total funding for this project will remain the same as per the approved AFE budget i.e. \$420.

**6. Yokogawa Centum CS HMI Retrofit at Utilities II - \$844**

The detailed engineering design is expected to be completed in August 2012. Deliveries of all procurement items are expected to be arrived by April 2013. The construction contract is scheduled to be awarded in April 2013 and start in May 2013. The overall completion is targeted by 4<sup>th</sup> quarter 2013. The total funding for this project will remain the same as per the approved AFE budget i.e. \$900.

**7. HMI and SOE Honeywell Plantscape Retrofit at Trains-C/D/E - \$224**

The detailed engineering design is expected to be completed in August 2012. Deliveries of all procurement items are expected to be arrived by March 2013. The construction contract is scheduled to be awarded in April 2013 and start in May 2013. The overall completion is targeted by 4<sup>th</sup> quarter 2013. The total funding for this project will remain the same as per the approved AFE budget i.e. \$265.

**8. Fire Protection System at Fuel Gas KOD 31C-23/28 - \$190**

The detailed engineering design is expected to be completed in July 2012. Deliveries of all procurement items are expected to be arrived by March 2013. The construction contract is scheduled to be awarded in April 2013 and start in May 2013. The overall completion is targeted by 4<sup>th</sup> quarter 2013. The total funding for this project will remain the same as per the approved AFE budget i.e. \$200.

**9. Fire Water Pumps Reliability Improvement - \$431**

The detailed engineering design was completed. Deliveries of all procurement items are expected to be arrived by January 2013. The construction contract is scheduled to be awarded in February 2013 and start in March 2013. The overall completion is targeted by 4<sup>th</sup> quarter 2013. The total funding for this project will remain the same as per the approved AFE budget i.e. \$500.

**10. Roof & Concrete Deck Improvement at Al-Kautsar Mosque - \$220**

The detailed engineering design is expected to be completed in July 2012. Deliveries of all procurement items are expected to be arrived by January 2013. The construction contract is scheduled to be awarded in February 2013 and start in March 2013. The overall completion is targeted by 4<sup>th</sup> quarter 2013. The total funding for this project will remain the same as per the approved AFE budget i.e. \$250.

**11. Main Warehouse Roof Replacement Phase II - \$350**

The detailed engineering design was completed. Deliveries of all procurement items are expected to be arrived by February 2013. The construction contract is scheduled to be awarded in February 2013 and start in March 2013. The overall completion is targeted by 4<sup>th</sup> quarter 2013. The total funding for this project will remain the same as per the approved AFE budget i.e. \$360.

**12. PT. Badak Land Certification - \$333**

Refer to the Uanomalous Regulation issued by Ministry of Finance (Menkeu) and Chief of Land Affairs Board(Ka BPN) No. 186/PMK.06/2009 and No. 24 Year 2009, PT Badak NGL Plant Site Area should be certified with Status "Hak' Pakai".

To protect Illegal Claims.

**PROPOSED ORIGINAL BUDGET 2013**  
**DESCRIPTION OF TIER II – NEW PROJECTS**  
(In Thousands of US Dollars)

**1. Replacement VTMS 7200 (35K-3 & 15K-1) - \$200**

It is proposed to purchase VTMS 7200 (35K-3 & 15K-1). The original VTMS 7200 installed since 1989 at 35K-3 and 15K-1 had obsolete already and need to be replaced with the latest version one. Please notice the part and service support was discontinued since 2000.

**2. Replacement of Radial drill Machine - \$350**

It is proposed to purchase 1 (one) unit Radial drill Machine to replace the existing machine was in service since 1977 which it has broken and could not be repaired due to obsolete. The Radial Drilling Machine is required for supporting the machine shop works.

**3. Replacement FAMS for PSF & Community Area - \$150**

It is proposed to retrofit the Fire Alarm Monitoring System (FAMS) at Fire Station with new hardware and software, and to integrate Fire Alarm Control Panel (FACP) at all PSF and community buildings. The existing FAMS is being connected via Fiber Optic to 5 FACPs in Maintenance, Warehouse, Marine, Laboratory and MPB. However, due to connection failure and server obsolete (installed since 1993), currently the existing FAMS is not being able to monitor these FACPs. Meanwhile, it is also proposed to enhance the coverage of FAMS to other buildings (PSF and community) to enhance the monitoring scope of Fire & Safety personnel in case of emergency/fire situation.

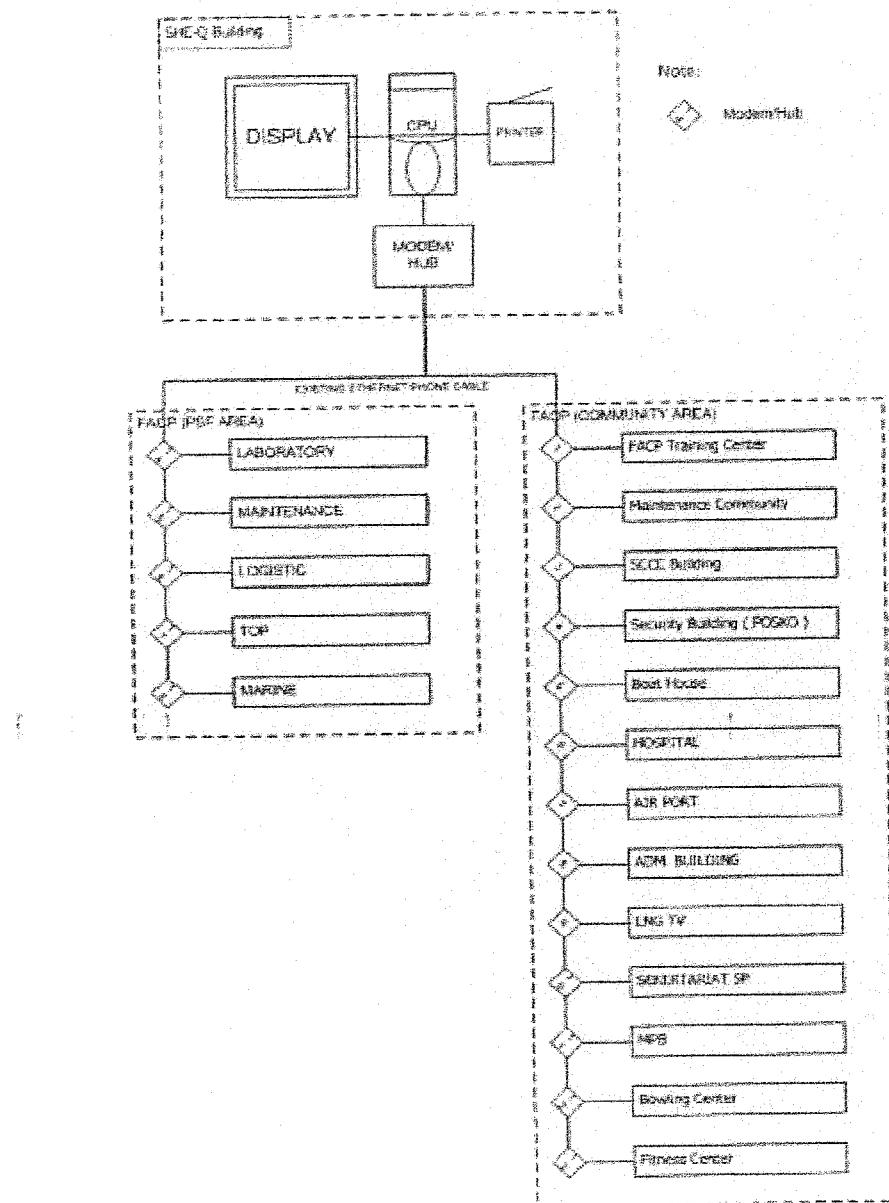
The work scopes of this project are as follows:

- Detail engineering design.
- Procurement of new FAMS and networking support equipments
- Install new FAMS and networking support equipments to integrate all PSF and community buildings.

This project should be completed in 2014

**Project Estimate and Schedule**

Budget Category	Current Year	Carry Forward	Total Project Cost
Project Cost Estimation	20	130	150
Project Execution Plan	Start	Finish	Duration
Detail Engineering Design	Mar-2013	Jul-2013	5 Months
Procurement	Aug-2013	Apr-2014	9 Months
Construction	May-2014	Aug-2014	4 Months



#### **4. Replacement Dry Chemical in 24D- 6 - \$150**

It is proposed to replace dry chemical system at 24D-6 since the existing Herion system was not working properly due to lack of N2 supply from small N2 cylinder and frequently experienced leakage from N2 cylinder manifold. The small N2 cylinder is used for triggering mechanical devices to open the valve from larger N2 cylinder that drive the dry chemical powder to exit from the dry chemical holder to spray system when the emergency/fire situation occurred. Additionally, the existing dry chemical system has already been obsolete as installed in 1993.

The work scopes of this project are as follows:

- Detail engineering design.
- Procurement of new dry chemical system
- Demolish the existing system and install new system at 24D-6.

This project should be completed on 2014

### Project Estimate and Schedule

Budget Category	Current Year	Carry Forward	Total Project Cost
Project Cost Estimation	20	130	150
<b>Project Execution Plan</b>	<b>Start</b>	<b>Finish</b>	<b>Duration</b>
Detail Engineering Design	Mar-2013	Jul-2013	5 Months
Procurement	Aug-2013	Apr-2014	9 Months
Construction	May-2014	Aug-2014	4 Months

**5. MP-LP Steam Letdown Station at Train G & H Utilities - \$140**

Based on energy assessment by Performance Improvement Limited (PI) in 2009, continuous LP steam venting of 7.5 ton/hr in average occurred in Module I. The possible cause is hydraulic problem due to geographical layout of Train G and H in the steam distribution system which leads to significant shortfall of LP steam to Train G and H inlet. This also contributed by lower LP steam production in the trains. This condition has contributed inefficiency in steam production related with fuel consumption and water treatment cost.

Process & SHE Engineering is requested to study the improvement of steam distribution system for minimizing the LP steam venting. The study resulted in that the most feasible option compared to other options is to relocate the existing let down station to the new location. By doing this option, it is expected to eliminate 3 ton/hr LP steam or equal with US\$ 89,813 / year recovery and result in payback period of 1.7 year. Noted that this project can only be executed during Train H shutdown.

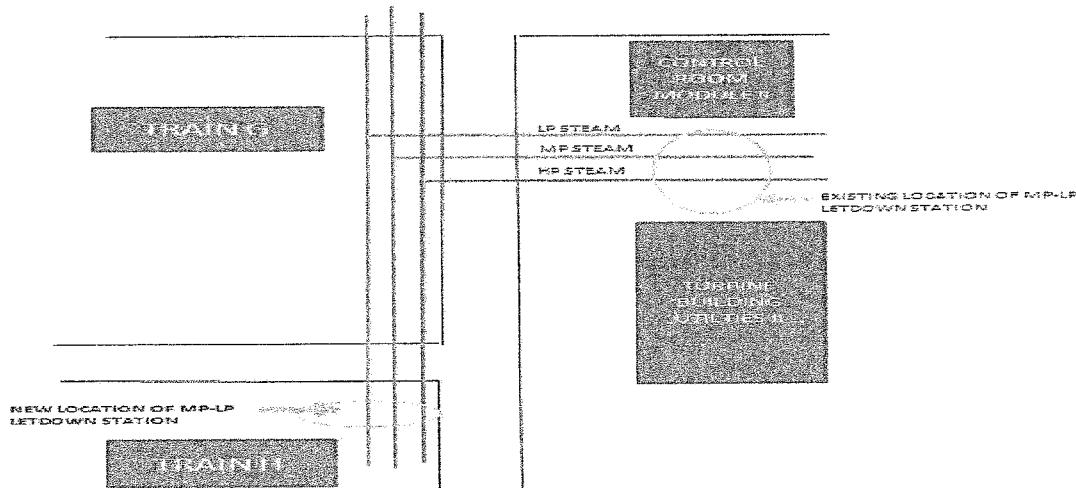
The project covers following scope of work:

1. Procurement, including purchase 20" gate valve (2 ea), 12" gate valve (2 ea), 20" and 12 " carbon steel pipes and fittings, and also structural steel and grating for pipe support and walkway.
2. Construction, including:
  - a. Mechanical
    - Remove the existing MP-LP letdown station from old location to new location and remain 20" and 12" double block valves on the old location.
    - Install new 20" and 12" double block valves at new location and followed by installing the MP-LP letdown station that has been removed from old location.
    - Fabricate and install walkway.
  - b. Instrument
    - Install junction box at old location of MP-LP letdown station.
    - Do wiring from instrument equipments, which also been removed to the new location, to the junction box.

Noted that this project can only be executed during Train H shutdown.

Project Estimate and Schedule

Budget Category	Current Year	Carry Forward	Total Project Cost
Project Cost Estimation	15	125	140
Project Execution Plan	Start	Finish	Duration
Detail Engineering Design	Jan-2013	Mar-2013	3 Months
Procurement	Apr-2013	Sep-2013	6 Months
Construction / Installation	Aug-2013	Sep-2014	Train H S/D

**6. Cable 48FDR-18/28 Additional - \$370**

Cable used for feeder 30FDR-18 & 30FDR-28 to supply power for housing, offices and recreation facility is 1x3C+Ex120sqmm which has corrected *current carrying capacity* (CCC) 234.5A. In normal operation when each feeders supply their own load, the current carrying capacity of cable is capable to carry the load. But, in case of one feeder trip due to electrical failure or normally shutdown for Preventive Maintenance (PM) program and tie breaker at switchgear 48-PSW-18/28 is close, all loads will supplied from one feeder only. The total load is 270A. This load could not be handle by the existing cable. Because of this consideration the cable never been PM checked.

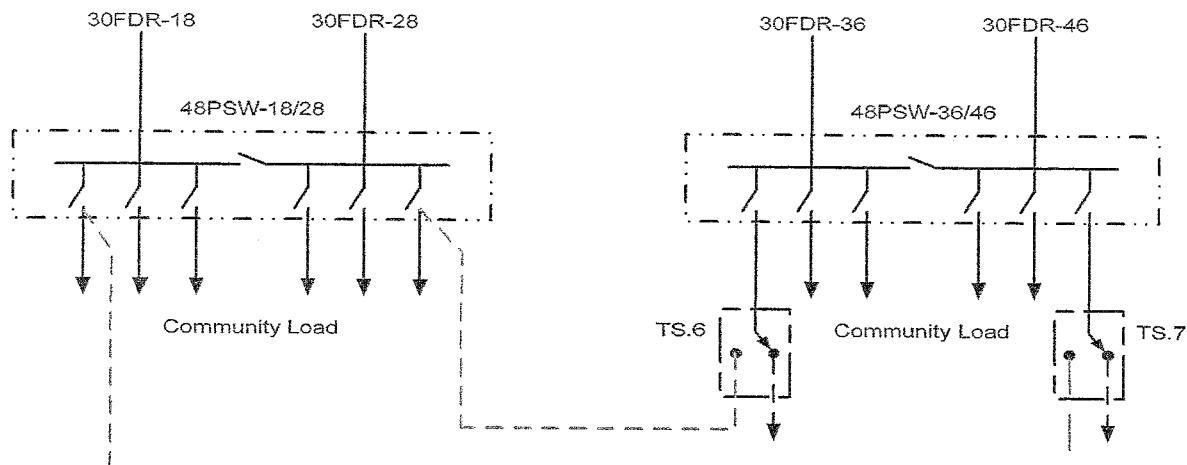
As the solution, some load of feeder 48FDR-18/28 should be moved to other feeders (48FDR-31/41).

The work scope of project is as follows:

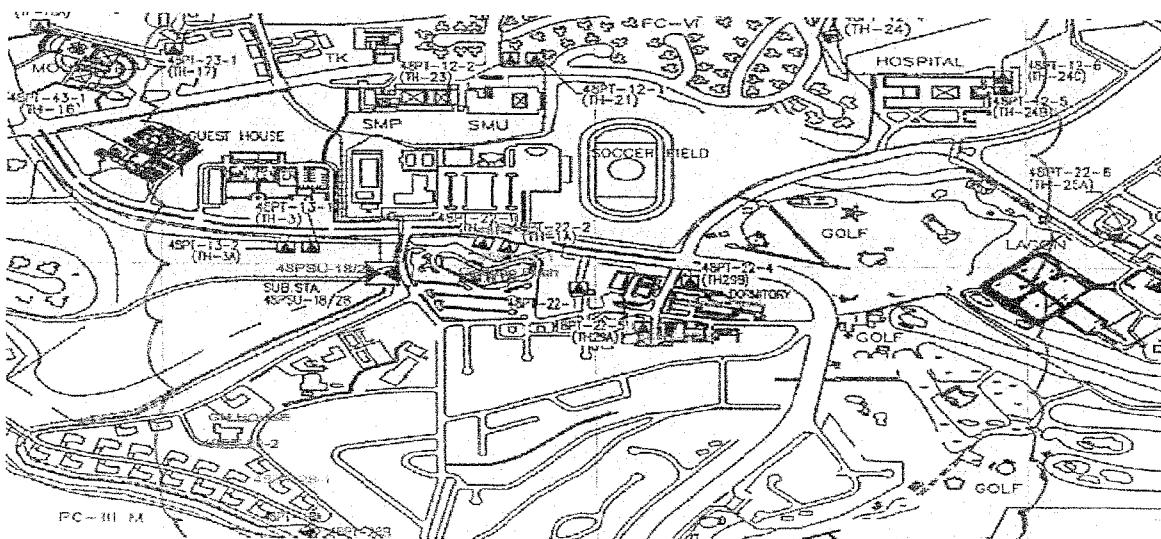
- Switch Transformers 48-PT-18-1/2 and 48-PT-28-1/2 to feeder 48-FDR-31/41 (supplied from Switchgear 48-PSW-36/46) directly through TS.4/5/6/7 without any modification of existing installation.
- Switch Transformers 48-PT-22-1/2/3/4 to feeder 48-FDR-31/41 (supplied from Switchgear 48-PSW-36/46). It will need to install additional cable for modifying the existing installation configuration.

## **Project Estimate and Schedule**

Budget Category	Current Year	Carry Forward	Project Cost Estimation
Project Cost Estimation	40	330	370
Project Execution Plan	Start	Finish	Duration
Detail Engineering Design	Jan-2013	Feb-2013	2 Months
Procurement	Mar-2013	Dec-2013	10 Months
Construction	Jan-2014	Aug-2014	8 Months
Commissioning	Sep-2014	Sep-2014	3 Days



----- New Cable Need to Install for transferring some load from Substation 48PSW-18/28 to 48PSW-36/46 -----

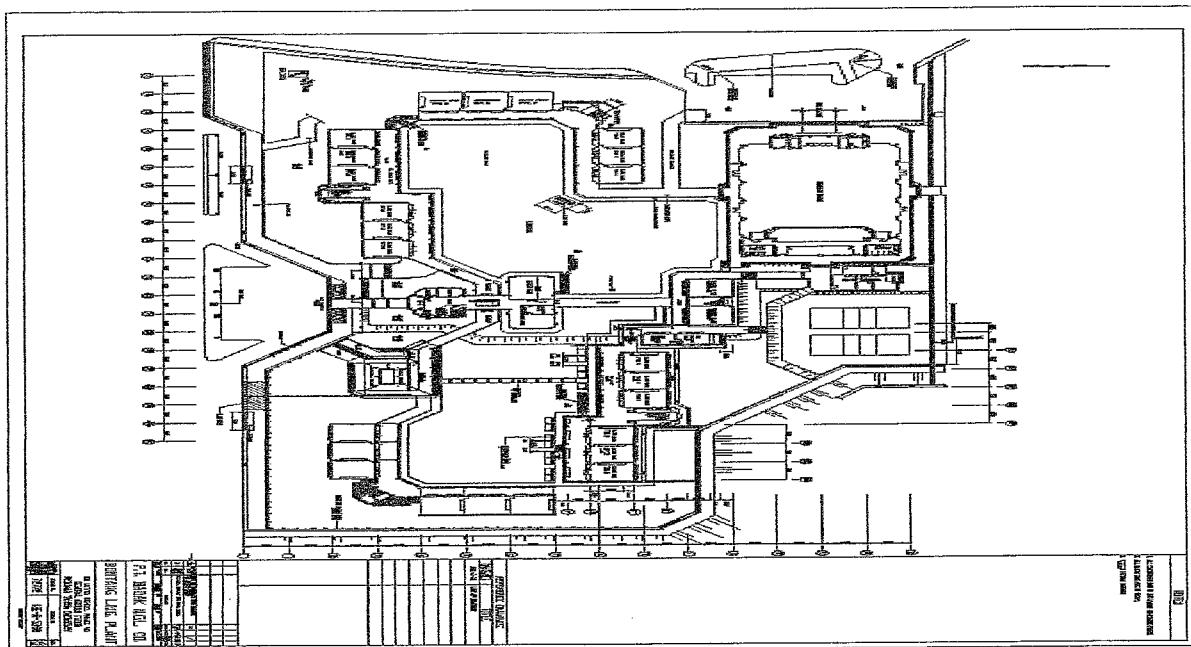


## 7. Triple Agent Fire Truck with Mercedes Benz Chassis 6x4 wheel drive - \$950

It is proposed to purchase 1 unit Triple Agent Fire Truck with Mercedes Benz Chassis 6x4 wheel drive to replace the old one Fire Truck (B-948 with 20 years old). This Fire Truck is used to meet the minimum requirement of Fire Truck for plant Emergency Respond.

## **8. Emergency Stair at SD Vidatra - \$43**

Elementary School at Vidatra Building constructed in 6 phases of implementation and completion in 1992. The building consists of 2 floors with a total 29 classrooms and an average of 24 students per class with a ladder to access up and down for students and teachers. There is one ladder for class 1 & 3, one ladder for class 2 & 4 and one ladder for class 5 & 6. The problem arises during recess or after school hours in which the tendency of children to run and jostle through the stairs access only one giving rise to unsafe conditions for the elementary school students.



The purpose of the project is to construct the emergency stairs at 3 location of Elementary School Vidatra Building.

The project covers the following scope of work:

- Construct emergency stair at Teacher Room (one location)
- Construct emergency stairs at Classrooms (two locations)

Considering the implementation of ISRS Level 8, Management Inspection in 2008 and Life Safety Code Handbook, emergency ladder is required for all multi storey buildings, inhabited by many people's such as schools, colleges / universities, apartments, flats, hotel, office buildings and hospital.

**Project Estimate and Schedule**

Budget Category	Current Year	Carry Forward	Total Project Cost
Project Cost Estimation	25	18	43
Project Execution Plan	Start	Finish	Duration
Detail Engineering Design	Jan-2013	Apr-2013	4 Months
Contract Development	May-2013	Jul-2013	3 Months
P & C Execution	Aug-2013	Jan-2014	6 Months

## **9. Replacement UPS 37-PU- 1 at Radio Room - \$170**

The existing UPS Merlin Gerin EPS-2000 (tag number 37-PU-1) has been obsolete since 1997. The spare parts and services will be not supported anymore starts in 2013. These are 10 KVA UPS, to supply critical load at Radio Room such as Trinking repeater, PABX, Trunk central controller etc. Considering their function, these UPS shall be reliable and all mandatory spare parts shall be supported by manufacturer.

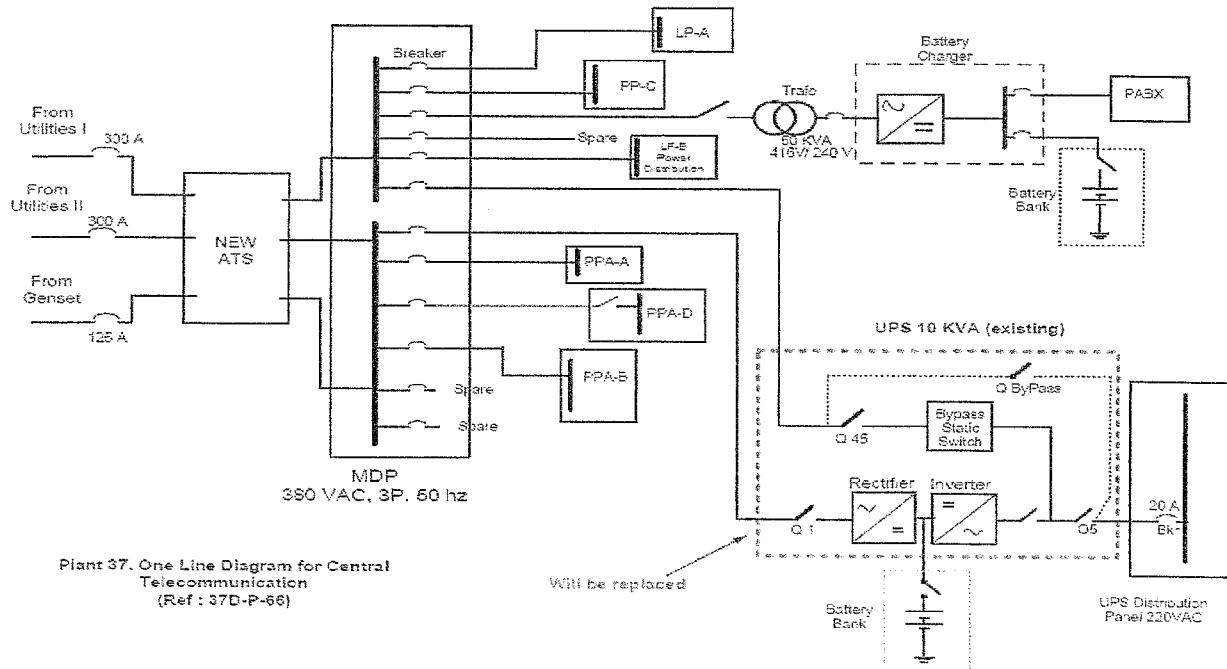
The purpose of the project is to replace the obsolescence UPS 37-PU-1 at Radio Room.

The project covers the following scope of work:

- Remove the existing UPS Merlin Gerin EPS-2000 (37-PU-1)
- Procure and install new UPS unit
- Perform test and commissioning.

### **Project Estimate and Schedule**

Budget Category	Current Year	Carry Forward	Total Project Cost
Project Cost Estimation	20	150	170
Project Execution Plan	Start	Finish	Duration
Detail Engineering Design	Jan-2013	Mar-2013	3 Months
Procurement	Mar-2013	Nov-2013	9 Months
Construction	Jan-2013	Mar-2014	3 Months



## **10. Pre-Heater Additional in Regeneration Gas Circuit to Reduce High Pressure Steam Consumption - \$650**

This project is a follow up to Energy Assessment by PIEE. In plant 2, high pressure steam is utilized for heating up 31,000 – 40,000 kNm<sup>3</sup>/hr of regeneration gas from ± 20 °C to ± 270 °C in Drier Reactivation Heater (2E-7) as part of regeneration cycle of saturated moisture bed. A new heat exchanger which functions as a pre-heater is proposed to be added to pre-heat the regeneration gas entering Drier Reactivation

Heater (2E-7) by utilizing hot regeneration gas exiting saturation Feed Drier (2C-2) during heating step of regeneration cycle. Technical and economical evaluation is required to assess whether this modification is feasible to be implemented.

Based on Process & SHE Engineering evaluation, these additional pre-heaters in regeneration gas circuit can reduce high pressure steam consumption by 4.5 – 6 tons/hr. This effort can also reduce the power consumption by 14.9 – 30 kW per train. The evaluation reveals that these modifications are will have PBP of 3.1 years. Modifications will be implemented in all trains.

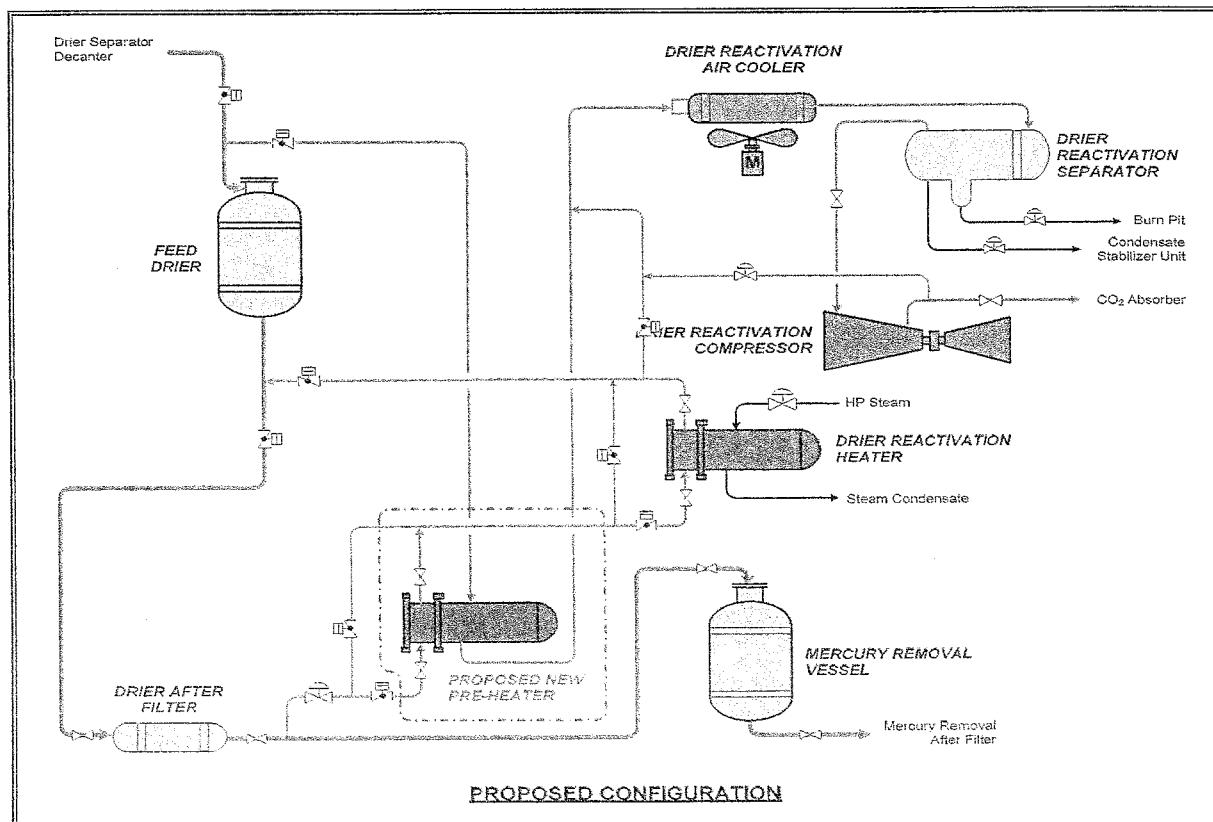
The work scopes of this project are as follows:

- Detail engineering design.
- Procurement of Heat Exchanger, Piping, Valves and Instrumentation.
- Install Heat Exchanger, Piping, Valves and Instrumentation.
- Performance Test.

#### Project Estimate and Schedule

Budget Category	Current Year	Carry Forward	Total Project Cost
Project Cost Estimation	195	455	650
Project Execution Plan	Start	Finish	Duration
Detail Engineering Design	Jan-2013	Jun-2013	6 Months
Procurement	Jul-2013	Dec-2014	18 Months
Construction	Jan-2015	Dec-2015	12 Months

This project is Tier-2 and will be completed in 2014.



**PROPOSED ORIGINAL BUDGET 2013**

**PROPOSED ORIGINAL BUDGET 2013**  
**WORKING CAPITAL CHANGES**  
 (In Thousands of US Dollars)

Opening Balance 01/01/2013	Closing Balance 31/12/2013		Qtr 1	Qtr 2	Qtr 3	Qtr 4	Original Budget 2013	Revised Budget 2012	Variance Over / (Under)
<b>INVENTORY CHANGES</b>									
<b>Main Warehouse:</b>									
		Receipt	3,670	4,205	4,517	4,448	16,840	15,241	1,599
		Issues	(3,380)	(3,893)	(4,307)	(4,152)	(15,732)	(14,895)	(837)
		Adjustment	10	10	(10)	(10)	0	0	(0)
45,989	47,097	<b>Subtotal Main Warehouse</b>	300	322	200	286	1,103	347	761
<b>Others Inventory</b>									
66	37	Souvenir Stock	(4)	(10)	(5)	(10)	(29)	14	(43)
373	293	Other Inventory	(20)	(20)	(20)	(20)	(80)	(92)	12
439	330	<b>Subtotal Others Inventory</b>	(24)	(30)	(26)	(30)	(109)	(78)	(31)
46,428	47,427	<b>Total Inventory</b>	276	292	175	256	999	269	730
<b>OTHER WORKING CAPITAL CHANGES</b>									
<b>Receivables</b>									
3,250	3,466	Commercial Receivables	(878)	351	353	390	216	599	(383)
18,885	20,735	Employee Receivables/Loan	532	346	493	479	1,850	2,685	(835)
22,135	24,201	<b>Subtotal Receivable</b>	(346)	697	846	869	2,066	3,284	(1,218)
<b>Prepaid &amp; Deferred Charges</b>									
890	826	PPN Creditable & PPh 22/23	104	(205)	123	(86)	(64)	(286)	222
(325)	43	Insurance	2,270	(634)	(634)	(634)	368	78	290
69	113	Rent	200	(52)	(52)	(52)	44	12	32
3,826	4,240	Others Prepaid	475	(206)	(380)	525	414	318	96
4,460	5,222	<b>Subtotal Prepaid</b>	3,049	(1,097)	(943)	(247)	762	122	640
<b>Accrued Liabilities</b>									
17,540	12,712	Account Payables	1,335	(1,890)	(2,219)	(2,054)	(4,828)	(4,205)	(623)
(5,107)	(5,340)	Tax Payable	(770)	358	467	(288)	(233)	(328)	95
(5,177)	(4,998)	Others Liabilities	(620)	(206)	660	345	179	270	(91)
7,256	2,374	<b>Subtotal Accrued Liabilities</b>	(55)	(1,738)	(1,092)	(1,997)	(4,382)	(4,263)	(619)
(179)	211	<b>Miscellaneous</b>	40	145	65	140	390	306	84
(179)	211	<b>Subtotal Miscellaneous</b>	40	145	65	140	390	306	84
33,672	32,008	<b>Total Other Working Capital Changes</b>	2,688	(1,993)	(1,124)	(1,235)	(1,064)	(551)	(1,113)
80,100	79,435	<b>Total Other Working Capital</b>	2,964	(1,701)	(943)	(979)	(665)	(282)	(383)

**PROPOSED ORIGINAL BUDGET 2013  
EXPLANATION OF WORKING CAPITAL CHANGES  
(In Thousands of US Dollars)**

**Working Capital Changes** – decrease by \$383

**Inventory Change** – increase by \$730

1. Main Warehouse Receipts of \$16,840 will increase by \$1,599 than was estimated in the revised budget 2012 mainly due to will be some additional new stock item of instrument and rotating parts in Tr. G & H.

While Main Warehouse Issues of \$15,732 will increase by \$837 mainly due to lower monthly receipts and higher issues for normal stock items than was estimated in the revised budget 2012.

**Other Working Capital Changes** - decrease by \$1,113

1. Commercial Receivable changes will be debit of \$216, which is \$383 lower than Revised Budget mainly because of higher anticipated receipts in 2012 from PTB invoices.
2. Employee Receivable changes will be debit of \$1,850, which is \$835 lower than Revised Budget mainly because of given employee loan higher than receipt of installment loan for each month.
3. Prepaid PPN Creditable & PPh 22/23 changes will be credit of \$64, which is \$222 higher than Revised Budget mainly due to compensate to corporate income tax for 2013 and PPN Output.
4. Prepaid insurance changes will be debit of \$634, which is \$290 higher than Revised Budget mainly due to expected increase of premium rate for fire insurance.
5. Accounts Payable changes will be a credit of \$4,828, which is a decrease of \$623 compared with the Revised Budget 2012 mainly because of higher expected payment of outstanding invoices in the accounts payable system at the end of 2013.

**PROPOSED ORIGINAL BUDGET 2013**

**PROPOSED ORIGINAL BUDGET 2013**

**TIER III CATEGORY**

(In Thousand US Dollars)

Rate 9300 Per USD

No.	AFE NO:	Title	Dept	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Original Budget 2013	Prior Year Cost	Carry Forward Cost	Total Project Forecast
<b>Carry Forward</b>											
1	43010204	Module I & II Cooling Water Area Reliability Improvement	OPT	680	850	570	203	2,303	1,882	-	4,185
2	43011201	Train F DCS Centum XL Replacement	OPT	325	550	700	910	2,485	250	1,700	4,435
3	43011202	Flare Gas Recovery (Pashe I)	OPT	157	276	472	545	1,450	500	550	2,500
4	43012201	ABB STAL Gas Turbine Control System (PG-15) Retrofit	OPT	15	215	640	130	1,000	20	700	1,720
<b>Sub Total Carry Forward</b>				<b>1,177</b>	<b>1,891</b>	<b>2,382</b>	<b>1,788</b>	<b>7,238</b>	<b>2,652</b>	<b>2,950</b>	<b>12,840</b>
<b>Current Year</b>											
1	43013XXX	Community Water Losses - PC Area Improvement Phase II	OPT	3	6	44	380	433	-	580	1,013
2	43013XXX	Potable Water Quality Improvement at Storage	Tech	-	-	10	10	20	-	1,080	1,100
3	43013XXX	Implementation of RO - EDI	Tech	-	-	50	50	100	-	1,800	1,900
<b>Sub Total</b>				<b>-</b>	<b>-</b>	<b>60</b>	<b>60</b>	<b>120</b>	<b>-</b>	<b>2,880</b>	<b>3,000</b>
<b>Sub Total Current Year</b>				<b>3</b>	<b>6</b>	<b>104</b>	<b>440</b>	<b>553</b>	<b>-</b>	<b>3,460</b>	<b>4,013</b>
<b>Total Tier III</b>				<b>1,180</b>	<b>1,897</b>	<b>2,486</b>	<b>2,228</b>	<b>7,791</b>	<b>2,652</b>	<b>6,410</b>	<b>16,853</b>

**PROPOSED ORIGINAL BUDGET 2013**

**DESCRIPTION OF TIER III – CARRY FORWARD**

(In Thousands of US Dollars)

**1. Module I & II Cooling Water Area Reliability Improvement - \$2,303**

The detailed engineering design was completed for Electrical and Mechanical. Electrical Package (CA-11003) was awarded in April 2011 with commencing on May 2011 to May 2012. Mechanical / NRV Improvement package will be executed by PO & WO. Instrument package will be also executed by PO / WO. The overall completion is targeted by 4<sup>th</sup> quarter 2013. The total funding for this project will remain the same as per the approved AFE budget, i.e. \$4,185.

**2. Train F DCS Centum XL Replacement - \$2,485**

The detailed engineering design is expected to be completed in July 2012. The EPC contract is scheduled to awarded in August 2012. The EPC is expected to start in September 2012. The overall completion is targeted by 4<sup>th</sup> quarter 2014. The total funding for this project will remain the same as per the approved AFE budget, i.e. \$4,435.

**3. Flare Gas Recovery - \$1,450**

The detailed engineering design is expected to be completed in December 2011. The EPC contract is scheduled to awarded in September 2012. The EPC is expected to start in October 2012. The overall completion is targeted by 4<sup>th</sup> quarter 2014. The total funding for this project will remain the same as per the approved AFE budget, i.e. \$2,500.

**4. ABB STAL Gas Turbine Control System (PG-15) Retrofit - \$1,000**

The detailed engineering design is expected to be completed in September 2012. The EPC contract is scheduled to awarded in November 2012. The EPC is expected to start in December 2012. The overall completion is targeted by 4<sup>th</sup> quarter 2014. The total funding for this project will remain the same as per the approved AFE budget, i.e. \$1,720.

**PROPOSED ORIGINAL BUDGET 2013**  
**DESCRIPTION OF TIER III – NEW PROJECTS**  
(In Thousands of US Dollars)

**1. Community Water Losses – PC Area Improvement - \$1,013**

Water losses in PT Badak NGL's community areas (SHEQ Building, PC III B, PC III, PC IV & PC VI) are identified to reach more than 50% of supplied water. It has been verified by 2 water losses surveys, which are the survey conducted by Rekayasa Engineering in 2005 and survey conducted by PT Badak NGL team in 2007.

In order to sharpen the year 2007 survey, PT Badak NGL's team conducted similar survey in 2010. The survey resulted in total water losses in PC and HOP areas are around 239.5 m<sup>3</sup>/ hr and 77 m<sup>3</sup>/ hr, respectively. The suspected damaged lines at some locations are in line with the result of 2005 survey by Rekayasa Engineering and some more locations that were not detected by 2005 survey. Water piping in PC areas will be replaced after replacing water piping in HOP areas that will finish by December 2012. By eliminating 239.5 m<sup>3</sup>/hr of water losses this improvement equal with US\$ 1,287,000/year saving and result in payback period of 11 months based on water treatment cost of US\$ 0.66/m<sup>3</sup>.

This project covers following scope of work:

1. Procurement, including purchasing HDPE pipes and flow meters.
2. Install the new pipes & flow meter to replace the existing ones.
3. Testing & Commissioning.

**Project Estimate and Schedule**

Budget Category	Current Year	Carry Forward	Total Project Cost
Project Cost Estimation	440	580	1,020
Project Execution Plan	Start	Finish	Duration
Leakage Detection	Feb-2013	Mar-2013	2 Months
Detail Engineering Design	Apr-2013	Aug-2013	5 Months
Procurement	Sep-2013	Feb-2014	6 Months
Construction	Mar-2014	Sep-2014	7 Months

**2. Potable Water Quality Improvement at Storage Loading Area - \$1,100**

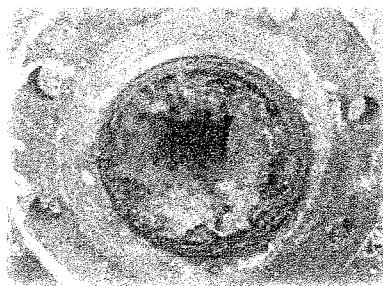
Potable water line header size 4" and 6", which service for storage loading area, run for about 5 Km started from Plant 38 to area plant 17, Plant 20, Plant 24, Plant 39 and Loading Dock 1/2/3.

Currently, the potable water pipeline had bad internal scaling and it has made the inside diameter of pipe reduce more than 50%. It might be caused by corrosion product. The pipe sample has been cut out and found bad scaling inside the pipe (see picture below). Therefore, it is necessary to replace potable water line at the mention above areas.

## PROPOSED ORIGINAL BUDGET 2013

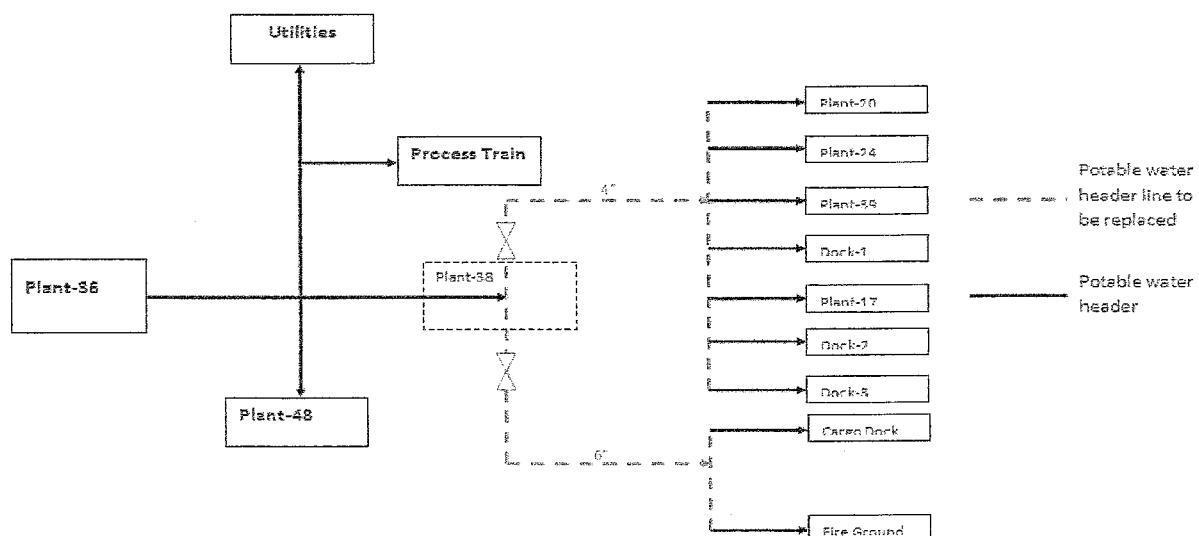


Internal pipe condition



Internal flange condition

Additionally, potable water supply to Plant 24, Plant 39, LPG Control Room and Dock 1/2/3 control room were not healthy anymore to be used for sanitary, washing, cleaning and drinking water since the iron content has reached the standard limit ( $>0.3 \text{ mg/l}$ ) and the colour has become yellow.



Simplified Diagram Potable Water Line

### Scope of Work:

- Replace piping header size 4" (length 5 Km) and size 6" (length 1 Km).
- Purchase water purifier 7 (seven) ea.
- Civil Work.
- Painting Work.
- Inspection and Testing.

### Project Estimate and Schedule

Budget Category	Current Year	Carry Forward	Total Project Cost
Project Cost Estimation	20	1,080	1,100
Project Execution Plan	Start	Finish	Duration
Detail Engineering Design	Jan-2013	Mar-2013	3 Months
Procurement	Apr-2013	Jan-2014	10 Months
Construction / Installation	Dec-2013	Dec-2014	12 Months

### 3. Implementation of RO - EDI - \$1,900

Reverse Osmosis – Electrodeionization (RO-EDI) is new technology of water treatment combining membrane separation and ion exchange process that could replace the existing Ion Exchanger units. This technology could eliminate current utilization of hazardous chemicals of sulfuric acid and caustic utilization that has raised some safety and environment issues.

Based on observation result of the RO-EDI pilot project in 2010-2011, the water product could meet PT Badak specification and there is no significant maintenance. RO-EDI is also potential to reduce water cost from current USD 0.66/m<sup>3</sup> to USD 0.408/m<sup>3</sup>. The proposed optimum RO-EDI capacity is 135 m<sup>3</sup>/hr.

The work scopes of this project are as follows:

- Pre-feasibility study covering data collection from vendors and benchmarking and continued with feasibility study
- Detail engineering design
- Procurement of RO-EDI unit
- Installation
- Commissioning

### Project Estimate and Schedule

Budget Category	Current Year	Carry Forward	Total Project Cost
Project Cost Estimation	100	1,800	1,900
Project Execution Plan	Start	Finish	Duration
Study	Jan-2013	Jun-2013	6 Months
Detail Engineering Design	Jun-2013	Dec-2013	6 Months
Procurement	Jan-2014	Nov-2014	11 Months
Construction	Dec-2014	Apr-2015	5 Months

**PROPOSED ORIGINAL BUDGET 2013**

**PROPOSED ORIGINAL BUDGET 2013**  
**OWNERS' COST PROJECT**  
(In Thousands of US Dollars)

<u>AFE NO:</u>	<u>Title</u>	<u>Dept</u>	Qtr	Qtr	Qtr	Qtr	Original	Prior	Carry	Total
			<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>Budget</u> <u>2013</u>	<u>Year</u> <u>Cost</u>	<u>Forward</u> <u>Cost</u>	<u>Project</u> <u>Forecast</u>
<u><b>Current Year</b></u>										
1	46013101 FEED for Various Project - Contract	SPD	-	100	165	200	465	-	-	465
2	46013101 FEED for Various Project - Business	SPD	-	-	-	-	-	-	-	-
3	46013101 FEED for Various Project - Material	SPD	-	-	-	-	-	-	-	-
<u><b>Total Owners Cost</b></u>										
			-	100	165	200	465	-	-	465
			-----	-----	-----	-----	-----	-----	-----	-----

**PROPOSED REVISED BUDGET 2013**  
**DESCRIPTION OWNERS' COST PROJECTS**  
(In Thousands of US Dollars)

**NEW PROJECT DESCRIPTION:**

**I. Train F Remaining Useful Life (RUL) Study- \$465**

Train F design life is 20 years and will be reached in 2013. Previously, RUL was performed by BP in 2009 for all Trains is only a Level 1 and deemed not comprehensive enough. Therefore, it is required comprehensive study to determine the remaining useful life of the equipment and structures in Train F and related Utilities as well as to determine the scope for Life Extension Program if any of the equipment has remaining useful life less than 10 years. A total of 51 studies need to be conducted and four of them need to be carried out by third party. The above budget is required to cover study conducted by that third party.

The studies which are conducted by third parties as follows:

**1. Fire Water Piping corrosion & flushing (USD 25,000)**

Justification:

- To assess current condition of fire water piping network of Train F
- To analyse the causes of corrosion occurred in the pipes since the pipe already in service for almost 20 years

**2. FRP Analysis Study Train F (USD 80,000)**

Justification:

To determine the Remaining Useful Life of the pipe and fitness for another 20 years of service (by taking samples)

**3. Condition Assessment and Life Extension study of piping and equipment (USD 300,000)**

Justification:

- To evaluate the equipment and piping based on a review of the original design, current operation condition and inspection results
- To identify the items that have progressive damage mechanisms that can limit their life to less than 20 years of service

**4. Soil stability/settlement in pad (USD 60,000)**

Justification:

To evaluate soil condition under slab concrete if there is a decreasing level caused by water leak

**The time frame:**

No	Activities	Schedule	Status
1	Scope of work (SOW) development	Apr – Aug 2012	IP
2	Contract Order Preparation	Sep – Oct 2012	
3	Bidding and/or BSO process	Nov – Dec 2012	
4	Contracts award	December 2012	
5	RUL Assessment	Jan – Aug 2013	
6	Final Report	September 2013	

**ONE TRAIN LONG TERM IDLE (LTI)**

Board of Commissioner unanimously agree to put 1 (one) Train in LTI and 2 (two) Trains in normal Idle for 2013 and before the end of 2012 Producers will consider whether to change 1 (one) Train of normal Idle to be extended STI.

The following is cost impact on One LTI with the period of 2013 – 2017.

	2013	2014	2015	2016	2017
LTI	7,184	121	131	141	152

**PROPOSED ORIGINAL BUDGET 2013  
ALTERNATIVE II**

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**PROPOSED ORIGINAL BUDGET 2013**

**PROPOSED ORIGINAL BUDGET 2013**  
**CHRONOLOGY & SUMMARY OF BUDGET REVIEW STEPS AND REDUCTION**  
(In Thousands of US Dollars)

The following is chronology & summary of budget review steps and reduction that has been included in this Proposed Original Budget 2013 :

Categories	Proposed OB2013 Based on BOC Meeting on July 19, 2012 (1) (a)	Proposed OB2013 in BOC Meeting on Oct 23, 2012 (2) (b)	Improvement Adjustment in line with last Pre-ADP (c)	Proposed OB2013 in Shareholders Meeting in Nov. 2012 (3) {{(d)=(b)-(c)}}	Revised Budget 2012 (e)	Variance	
						US\$	%
A Operating Expenses	206,623	202,593	(520)	203,113	192,259	10,854	5.6
B Capital Expenditures	9,269	9,220	524	8,696	5,512	3,184	57.8
C Working Capital Changes	(665)	(665)	0	(665)	(282)	(383)	135.8
D Tier III Capital	7,798	7,791	1,335	6,456	14,346	(7,890)	(55.0)
E Owners Cost	465	465	0	465	700	(235)	(33.6)
F Cost Impact on Train A Long Term Idle	7,184	7,184	5,784	1,400	0	1,400	100.0
G Total Cash Expenditures Before VAT	230,674	226,588	7,123	219,465	212,535	6,930	3.3
H VAT On Gas Processing	23,067	22,659	712	21,947	19,237	2,710	14.1
I Total Cash Expenditures After VAT	253,741	249,247	7,835	241,412	231,772	9,640	4.2
J EXCHANGE RATE US\$1	Rp. 9,000	Rp. 9,300		Rp. 9,300	Rp. 9,000		
K CARGOES	201.10	168.81		171.10	211.12	(40.02)	(19.0)

**Notes :**

(1) Proposed OB2013 was developed based on BOC Resolution on the Extraordinary BOC Meeting on July 19, 2012 as follows:

BOC unanimously agree to put 1 (one) Train in LTI and 2 (two) Trains in Normal Idle for 2013 and before the end of 2012 Producers will consider whether to change 1 (one) Train of Normal Idle to be Extended STI.

Based on the above resolution, PT Badak NGL should maintain number of manning for 7 Trains.

Exchange Rate US\$ 1= Rp.9,000.

(2) Proposed OB2013 in BOC Meeting on October 23, 2012.

During The 2013 Proposed Original Budget Review Meeting between PT Badak NGL and Producers was held on October 2, 2012 and BOC Meeting on 23 October 2012, PT Badak NGL initiatively proposed Potential Budget Reduction by considering feed gas supply delivered and standard cargo shipped during 2013.



**PROPOSED ORIGINAL BUDGET 2013**

**PROPOSED ORIGINAL BUDGET 2013  
BUDGET SUMMARY  
(In Thousands of US Dollars)**

Total Cash Expenditures for the Original Budget 2013 to be funded from sales revenues before VAT on Gas Processing and Cost Impact on LTI are expected to be \$218,065 which is \$5,530 or 2.6% higher than the Revised Budget 2012 and after VAT on Gas Processing and Cost Impact on LTI are expected to be \$241,412 which is \$9,640 or 4.2% higher than the Revised Budget 2012.

Total Operating Expenses are expected to be \$203,113 which shows an increase of \$10,854 or 5.6% compared with the Revised Budget 2012. This result in an Operating Unit Cost figure without Retirement Cost of 30.22 cents per MMBTU which is 7.12 cents or 30.8% higher than that of the Revised Budget and with Retirement Cost of 37.07 cents per MMBTU which is 8.56 cents or 30.0% higher than that of the Revised Budget. The number of LNG shipments are estimated to be 171.10 standard cargoes with a total MMBTU'S produced of 547,865 which is 126,598 or 18.8% lower than the Revised Budget.

The increase in Operating Expenses results from higher expenses for Materials & Supplies \$697, Maintenance \$4,787, Services \$2,548, Contract Services \$610, Other Expenses \$3,323 and Recoveries & Allocations \$923. These were partly offset by lower cost for Employee Related \$133 and Business Related \$55.

Tier I costs are expected to be \$3,122 as same as with the Revised Budget 2012.

Tier II cost are expected to be \$5,574 which is higher than the Revised Budget 2012 by \$3,184.

Working Capital changes are expected to decrease by \$383 resulting in a credit variance due to Other Accounts \$1,113. These decrease will be partly offset by increase in Inventory \$730.

The Owners Cost category is expected to be \$465 which is decreased by \$235 from Revised Budget 2012.

Tier III Capital Expenditures are expected to be \$6,456 which is decreased by \$7,890 from Revised Budget 2012.

**PROPOSED ORIGINAL BUDGET 2013**

**PROPOSED ORIGINAL BUDGET 2013**  
**SUMMARY OF SIGNIFICANT CHANGES**  
(In Thousands of US Dollars)

**Significant Changes in Expenditures Compared with Revised Budget 2012:**

**A. Operating Expenses**

- Decreases in Employee Related	(133)
- Decreases in Business Related	(55)
- Increases in Materials & Supplies	697
- Increases in Maintenance	4,787
- Increases in Services	2,548
- Increases in Contract Services	3,634
- Increase in Other Expenses	299
- Increase in Recoveries & Allocation	(923)
	<hr/>
	10,854

**B. Capital Expenditures**

- Increases in Tier II Expenditures	<hr/> 3,184
	3,184

**C. Working Capital Changes**

- Increases in Inventory & MIT	730
- Decreases in Other Accounts	(1,113)
	<hr/> (383)

**D. Tier III Capital**

- Decreases in Tier III Expenditures	<hr/> (7,890)
	(7,890)

**E. Owners Cost**

- Decreases in Owners Cost	<hr/> (235)
	(235)

**Total Cash Expenditures Changes** 

---

**5,530**

Cost Impact on One LTI	1,400
VAT on Gas Processing	2,710
	<hr/>

**Total Cash Expend. After VAT on Gas Processing** 

---

**9,640**

**PROPOSED ORIGINAL BUDGET 2013**  
**WORK PROGRAM ASSUMPTIONS**  
(In Thousands of US Dollars)

**A. Operational Assumptions**

1. Mode of operation in 2013 is 7 Trains operation (4 Trains Running and 3 Trains normal Idle) and full LPG extraction. Thermal Efficiency Factor is targeted to be 87.85%.

Based on the average Yearly Gas Delivery Forecast of 1,575 MMScfd (ADP 2013 rev-Nov):

- LNG production is 21.388 million m<sup>3</sup> or 171.10 standard cargoes or 9.708 million ton or 503,336 MMMBtu.
- LPG Propane (C<sub>3</sub>) production is 0.345 million m<sup>3</sup> or 0.20 million ton or 9,550 MMMBtu.
- LPG Butane (C<sub>4</sub>) production is 0.326 million m<sup>3</sup> or 0.19 million ton or 9,107 MMMBtu.
- Condensate production is 0.818 million m<sup>3</sup> or 0.56 million ton or 5.147 million BOE (Barrel Oil Equivalent) or 25,872 MMMBtu.

Total MMMBtu of Gas Delivery equals to **624,627** while the total MMMBtu production equals to **547,865**

2. 1 Train LTI (Long Term Idle) that was approved by BOC on 19 July 2012. Modify LTI expenditures that will be spread out within 5 years.

**B. Administration Assumptions**

1. National employee manning levels are planned to be 1,116 at the beginning of 2013 and 1,048 at the end of 2013 in the Original Budget 2013 compared with 1,157 at the beginning and 1,116 at the end of 2012 in the Revised Budget. Redefine extended STI in term of only Manning based on 6 Trains concept by reducing recruitment number from 88 to 10.
2. Regional Minimum Basic Wages (UMSK) is adjusted to UMSK Migas Bontang.
3. One month of Lebaran bonus and 3 months of performance contract bonus for 2012, are budgeted for national employees (prediction based on achievement KPI YTD July 2012).

**C. Other Assumptions**

1. Expenses which will be spent in Rupiah have been converted to US Dollars by using an exchange rate of Rp.9.300 versus Rp.9.000 in the Revised Budget 2012.
2. The plant property insurance policy was renewed effectively on 1 June 2012 based on "6 Trains concept" and the coverage will be maintained on this basis when this insurance is renewed on 1 June 2013.
3. The proposed Original Budget 2013 has considered the work for Reliability Improvement Programs as described in the 2011-2014 Road Map endorsed by all parties.
4. Overhaul Dock I Proposed in Original Budget 2013
5. Tug Boat Rental Proposed in Original Budget 2013 (N+1 = 6)
6. Value Added Tax (VAT) and Penalty on Pipeline Operation & Maintenance Agreement (POMA) has been included in this Proposed Original Budget 2013 in the amount of \$3M as presented by VICO during the Last Producers Meeting on 20 November 2012. This POMA VAT is treated in OPEX, under Pipeline Maintenance in Contract Services categories.

**PROPOSED ORIGINAL BUDGET 2013**  
**SUMMARY OF EXPENDITURES & SOURCE OF FUNDS**  
( In Thousands of US Dollars )

	Original Budget 2013 Rp.9,300	Revised Budget 2012 Rp.9,000	Variance Over (Under)	Actual Cost 2011 Rp.8,742	Actual Cost 2010 Rp.9,075
<b>CASH EXPENDITURES :</b>					
Operating Expenses W/O Retirement Costs	165,561	155,782	9,779	6.3	148,613
Retirement Costs	37,552	36,477	1,075	2.9	33,400
<b>Total Opex With Retirement Costs</b>	<b>203,113</b>	<b>192,259</b>	<b>10,854</b>	<b>5.6</b>	<b>182,013</b>
<b>Capital Expenditures</b>					
Tier I	3,122	3,122	-	-	1,591
Tier II	5,574	2,390	3,184	133.2	3,026
<b>Total Capital Expenditures</b>	<b>8,696</b>	<b>5,512</b>	<b>3,184</b>	<b>57.8</b>	<b>4,617</b>
<b>Working Capital Changes</b>					
Inventory	999	269	730	271.4	(3,156)
Other Accounts	(1,664)	(551)	(1,113)	202.0	(1,795)
<b>Total Working Capital Changes</b>	<b>(665)</b>	<b>(282)</b>	<b>(383)</b>	<b>135.8</b>	<b>(4,951)</b>
<b>Total Operating Expenditures</b>	<b>211,144</b>	<b>197,489</b>	<b>13,655</b>	<b>6.9</b>	<b>181,679</b>
Tier III Capital Expenditures	6,456	14,346	(7,890)	(55.0)	3,652
Owners Cost Expenditures	465	700	(235)	(33.6)	19
	<b>6,921</b>	<b>15,046</b>	<b>(8,125)</b>	<b>(54.0)</b>	<b>3,671</b>
<b>Total Cash Expend.Before YPVDP-GHS</b>	<b>218,065</b>	<b>212,535</b>	<b>5,530</b>	<b>2.6</b>	<b>185,350</b>
YPVDP Golden Hand shake Program	-	-	-	-	12,092
Cost Impact on LTI	1,400	-	1,400	100.0	-
<b>Total Cash Expend.After YPVDP-GHS</b>	<b>219,465</b>	<b>212,535</b>	<b>6,930</b>	<b>3.3</b>	<b>185,350</b>
VAT on Gas Processing	21,947	19,237	2,710	14.1	-
<b>Total Cash Expend.After VAT on Gas Processing</b>	<b>241,412</b>	<b>231,772</b>	<b>9,640</b>	<b>4.2</b>	<b>185,350</b>
Total Operating Expenses / MMBTU Without Retirement Costs	30.22c	23.1c	7.12c	30.8	18.27c
Total Operating Expenses / MMBTU With Retirement Costs	37.07c	28.51c	8.56c	30	22.37c
Total MMMBTU (Million) (estimated to be)	547.87	674.46	(126.60)	(18.8)	813.62
Standard Cargoes (estimated to be)	171.10	211.12	(40.02)	(19.0)	252.93
					922.02
					288.88

**PROPOSED ORIGINAL BUDGET 2013**

**PROPOSED ORIGINAL BUDGET 2013**  
**OPERATING EXPENSES**  
**(Including Retirement Costs)**  
**( In Thousands of US Dollars )**

	Original Budget 2013 Rp.9,300	Revised Budget 2012 Rp.9,000	Variance Over (Under)	Variance % -----	Actual Costs 2011 Rp.8,742	Actual Costs 2010 Rp.9,075
<b><u>Employee Related</u></b>						
Empl.Compensation - Nat'l	45,966	45,406	560	1.2	41,453	39,062
Empl.Benefits - National	18,050	18,404	(354)	(1.9)	16,731	15,935
	64,016	63,810	206	0.3	58,184	54,997
Terminations & Severance Payment	22,562	22,817	(255)	(1.1)	20,824	19,926
Employee Related Tax	18,434	18,518	(84)	(0.5)	17,001	15,072
	105,012	105,145	(133)	(0.1)	96,009	89,995
<b><u>Business Related</u></b>						
Company Business	1,927	1,927	0	0.0	2,666	2,465
Medical	5,868	5,866	2	0.0	4,389	2,761
Training	2,193	2,250	(57)	(2.5)	2,373	1,924
	9,988	10,043	(55)	(0.5)	9,428	7,150
<b><u>Materials &amp; Supplies</u></b>						
Catalysts & Chemicals	2,666	2,341	325	13.9	3,114	2,688
Operating Supplies	5,232	4,860	372	7.7	5,759	5,174
Fuels, Lubes & Greases	2,031	2,031	0	0.0	1,894	1,630
	9,929	9,232	697	7.5	10,767	9,492
<b><u>Maintenance</u></b>						
Plant Maintenance	29,862	25,040	4,822	19.3	25,576	31,135
Community Maintenance	4,833	4,803	30	0.6	4,352	4,959
Other Maintenance	526	591	(65)	(11.0)	434	432
	35,221	30,434	4,787	15.7	30,362	36,526
<b><u>Services</u></b>						
Equip.Rntl/Leases/Charter	8,326	5,774	2,552	44.2	5,067	4,338
Communications	607	611	(4)	(0.7)	454	505
	8,933	6,385	2,548	39.9	5,521	4,843
<b><u>Contract Services</u></b>						
Computer Services	1,223	770	453	58.8	364	457
Catering	1,346	1,382	(36)	(2.6)	1,477	1,615
Pipeline Maintenance	7,447	4,423	3,024	68.4	3,305	3,276
Service Orders	2,834	3,084	(250)	(8.1)	1,131	1,771
General Contract Services	14,609	14,166	443	3.1	15,988	13,905
	27,459	23,825	3,634	15.3	22,265	21,024
<b><u>Other Expenses</u></b>						
Community Development	1,251	1,284	(33)	(2.6)	1,129	972
Foundation Subsidies	1,329	1,343	(14)	(1.0)	1,442	3,012
Public Relations	1,251	1,213	38	3.1	1,006	525
Insurance	2,535	2,349	186	7.9	2,136	2,214
Taxes	2,372	2,508	(136)	(5.4)	1,439	1,958
Miscellaneous	1,204	946	258	27.3	4,196	821
	9,942	9,643	299	3.1	11,348	9,502
<b><u>Recov. &amp; Allocations</u></b>						
Recoveries						
- Regular	(1,117)	(1,024)	(93)	9.1	(1,926)	(1,798)
- Non Regular	(1,299)	(757)	(542)	71.6	(1,388)	(125)
Allocations	(955)	(667)	(288)	43.2	(373)	(404)
	(3,371)	(2,448)	(923)	37.7	(3,687)	(2,327)
<b>Total Operating Expenses</b>	<b>203,113</b>	<b>192,259</b>	<b>10,864</b>	<b>5.6</b>	<b>182,013</b>	<b>176,205</b>

**PROPOSED ORIGINAL BUDGET 2013**

**PROPOSED ORIGINAL BUDGET 2013**

**OPERATING EXPENSES**

**Excluding Retirement Costs**

( In Thousands of US Dollars )

	Original Budget 2013 Rp.9,300	Revised Budget 2012 Rp.9,000	Variance Over (Under)	Variance % 	Actual Costs 2011 Rp.8,742	Actual Costs 2010 Rp.9,075
<b>Employee Related</b>						
Empl.Compensation - Nat'l	41,462	41,660	(198)	(0.5)	38,393	36,040
Empl.Benefits - National	16,881	17,125	(244)	(1.4)	15,127	14,774
	58,343	58,785	(442)	(0.8)	53,520	50,814
Employee Ralated Tax	11,234	11,458	(224)	(2.0)	10,467	9,634
	69,577	70,243	(666)	(0.9)	63,987	60,448
<b>Business Related</b>						
Company Business	1,927	1,927	0	0	2,666	2,465
Medical	3,751	4,291	(540)	(12.6)	3,011	1,686
Training	2,193	2,250	(57)	(2.5)	2,373	1,924
	7,871	8,468	(597)	(7.1)	8,050	6,075
<b>Materials &amp; Supplies</b>						
Catalysts & Chemicals	2,666	2,341	325	13.9	3,114	2,688
Operating Supplies	5,232	4,860	372	7.7	5,759	5,174
Fuels, Lubes & Greases	2,031	2,031	0	0	1,894	1,630
	9,929	9,232	697	7.5	10,767	9,492
<b>Maintenance</b>						
Plant Maintenance	29,862	25,040	4,822	19.3	25,576	31,135
Community Maintenance	4,833	4,803	30	0.6	4,352	4,959
Other Maintenance	526	591	(65)	(11.0)	434	432
	35,221	30,434	4,787	15.7	30,362	36,526
<b>Services</b>						
Equip.Rntl/Leases/Charter	8,326	5,774	2,552	44.2	5,067	4,338
Communications	607	611	(4)	(0.7)	454	505
	8,933	6,385	2,548	39.9	5,521	4,843
<b>Contract Services</b>						
Computer Services	1,223	770	453	58.8	364	457
Catering	1,346	1,382	(36)	(2.6)	1,477	1,615
Pipeline Maintenance	7,447	4,423	3,024	68	3,305	3,276
Service Orders	2,834	3,084	(250)	(8.1)	1,131	1,771
General Contract Services	14,609	14,166	443	3.1	15,988	13,905
	27,459	23,825	3,634	15.3	22,265	21,024
<b>Other Expenses</b>						
Community Development	1,251	1,284	(33)	(2.6)	1,129	972
Foundation Subsidies	1,329	1,343	(14)	(1.0)	1,442	3,012
Public Relations	1,251	1,213	38	3.1	1,006	525
Insurance	2,535	2,349	186	7.9	2,136	2,214
Taxes	2,372	2,508	(136)	(5.4)	1,439	1,958
Miscellaneous	1,204	946	258	27.3	4,196	821
	9,942	9,643	299	3.1	11,348	9,502
<b>Recov. &amp; Allocations</b>						
Recoveries						
- Regular	(1,117)	(1,024)	(93)	9.1	(1,926)	(1,798)
- Non Regular	(1,299)	(757)	(542)	71.6	(1,388)	(125)
Allocations	(955)	(667)	(288)	43.2	(373)	(404)
	(3,371)	(2,448)	(923)	37.7	(3,687)	(2,327)
<b>Total Opex Excl. Retirement Costs</b>	<b>165,561</b>	<b>155,782</b>	<b>9,778</b>	<b>6.3</b>	<b>148,613</b>	<b>145,583</b>
<b>Retirement Costs</b>						
MPP - Employee Rel. Costs	5,673	5,025	648	12.9	4,665	4,183
Terminations & Severance Payment	22,562	22,817	(255)	(1.1)	20,824	19,926
Medical Care For Pension	2,117	1,575	542	34.4	1,378	1,075
Retirement Costs	30,352	29,417	935	3.2	26,866	25,184
Taxes Related	7,200	7,060	140	2.0	6,534	5,438
Total Retirement Costs	37,552	36,477	1,075	2.9	33,400	30,622
<b>Total Opex Incl. Retirement Costs</b>	<b>203,113</b>	<b>192,259</b>	<b>10,854</b>	<b>5.6</b>	<b>182,013</b>	<b>176,205</b>

**PROPOSED ORIGINAL BUDGET 2013**  
**EXPLANATIONS OF OPERATING EXPENSES VARIANCES**  
(In Thousands of US Dollars)

The Proposed Operating Expenses in the Original Budget 2013 at \$203,113 shows an increase of \$10,854 (5.6%) compared with the Revised Budget 2012. The major variances in operating expenses are explained below:

**Employee Related \$105,012** – decrease of \$133 (0.1%)

1. Employee Compensation of \$45,966 shows an increase of \$560 (1.2%) mainly due to the impact from:

- An increase in the basic salary \$1,239
- An increase in overtime \$15
- An increase in KPAK \$52

These increases will be partly offset by lower cost for leave allowance \$251, shift premium \$205, transportation allowance \$157, risk allowance \$93 and Site Allowance \$40.

2. Employee Benefits of \$18,050 shows a decrease of \$354 (1.9%) mainly due to the impact from:

- A decrease in KPI Production Bonus \$136
- A decrease in Education Allowance \$288
- A decrease in Lebaran bonus \$273
- A decrease in Reward 20<sup>th</sup> Service Award \$163
- A decrease in Tugu Mandiri Insurance \$44
- A decrease in LPG allowance \$47
- A decrease in Maintenance HOP \$74
- A decrease in Others Benefit \$179

This decrease will be partly offset by higher costs for saving plan \$47, JAMSOSTEK insurance \$138, Pension Fund \$402, Service Award \$164 and KBPR Allowance \$99.

Employee Related Costs per employee as the following:

**EMPLOYEE RELATED COST PER EMPLOYEE ACTIVE**  
**(EXCLUDING RETIREMENT & MPP COSTS)**  
(In Thousands of US Dollars )

Description	OB2013	RB2012	Variance	
			\$	%
<b>1. Manning Active ( average in year) :</b>				
Existing Employees	1,078	1,143	(65)	(5.7)
New Hired Employees	10	-	10	100
Total Manning Active	1,088	1,143	(55)	(4.8)
<b>2. Employee Related Costs without New PHDP:</b>				
Existing Employees	58,145	58,785	(640)	(1.1)
New Hired Employees	198	-	198	100
Total Employee Related	58,343	58,785	(442)	(0.8)
<b>3. Employee Related Cost per employee:</b>				
Existing Employees	53.94	51.43	2.51	4.9
New Hired Employees	19.80	-	19.80	100
Total Employee Related per Employee (Average)	53.62	51.43	2.19	4.3

**PROPOSED ORIGINAL BUDGET 2013**

3. Termination & Severance payment based on the employee retirement due in 2013 at \$22,562 shows a decrease of \$255 (1.1%) mainly due to lower cost for termination payment \$985 and early retirement termination \$25. These were partly offset by higher cost for advance severance payment \$369 and relocation cost \$386.

The breakdown consists of:

<u>Description</u>	<u>OB</u>	<u>RB</u>	<u>Variance</u>	
	<u>2013</u>	<u>2012</u>	<u>\$</u>	<u>%</u>
Termination/Final Severance Pay 100% (66 vs 83 Empl)	2,446	3,431	(985)	(29)
<b>Advance Severance Payment:</b>				
90% adv at 55 years old for 78 vs 66 empl.	8,922	8,203	719	9
60% adv at 53 years old for 83 vs 89 empl.	4,868	5,559	(691)	(12)
40% adv at 50 years old for 81 VS 74 empl	4,458	4,117	341	8
Early Retirement Termination (6 vs 6 empl)	908	933	(25)	(3)
Relocation (personal effects, airfare etc.)	960	574	386	67
	<b>22,562</b>	<b>22,817</b>	<b>(255)</b>	<b>(1.1)</b>

**Business Related \$9,988** - decrease of \$55 (0.5%)

1. Medical of \$5,868 shows an increase of \$2 (0%) mainly due higher cost for additional for retirees 130 head count \$541. These were partly offset by lower cost for Capitation for PISA \$352, eye-glasses \$179 and outside medical \$8.

The breakdown consists of:

	<u>OB</u>	<u>RB</u>	<u>Variance</u>		<u>Actual</u>	<u>Actual</u>
	<u>2013</u>	<u>2012</u>	<u>\$</u>	<u>%</u>	<u>2011</u>	<u>2010</u>
- Capitation for PISA	3,210	3,562	(352)	(9.9)	2,027	-
- Outside Medical	330	338	(8)	(2.4)	748	1,259
- Students	-	-	-	-	98	232
- Retirees	2,116	1,575	541	34.3	1,377	1,075
- Eye Glasses	212	391	(179)	(46)	139	195
	<b>5,868</b>	<b>5,866</b>	<b>2</b>	<b>0.0</b>	<b>4,389</b>	<b>2,761</b>

**PROPOSED ORIGINAL BUDGET 2013**

**Materials & Supplies \$9,929 - increase of \$697 (7.5%)**

1. Catalysts & Chemicals of \$2,666 shows a increase of \$325 (13.9%) mainly due to higher cost for Optisperse HTP-3001 \$202, Steamate Regen-3 \$83, Charcoal \$64, caustic soda \$30, others catalyst & chemical \$106 and optimeen \$7. These decreases will be partly offset by Molesieve \$69, Sulfurid Acid \$44, Optisperse OP-5547 \$41 and Calcium Hypochloride \$13.

The breakdown consist of:

	OB <u>2013</u>	RB <u>2012</u>	Variance		Actual <u>2011</u>	Actual <u>2010</u>
			\$	%		
Caustic Soda	256	226	30	13.3	231	251
Charcoal	88	24	64	266.7	29	27
Optisperse HTP-3001	504	302	202	66.9	627	340
Optimeen	180	173	7	4.0	207	151
Regenamine	163	80	83	103.8	168	175
MDEA	382	383	(1)	(0.3)	497	692
Molesieve	327	395	(68)	(17.2)	694	423
Lime Hydrated	53	54	(1)	(1.9)	29	52
Calcium Hypochloride	38	50	(12)	(24.0)	37	48
Sulfurid Acid	172	216	(44)	(20.4)	190	263
Opti Sperse OP-5547	17	58	(41)	(70.7)	5	10
Other Catalysts & Chemicals	486	380	106	27.9	400	256
	<b>2,666</b>	<b>2,341</b>	<b>325</b>	<b>13.9</b>	<b>3,114</b>	<b>2,688</b>
	=====	=====	=====	=====	=====	=====

2. Operating Supplies of \$5,232 shows a increase of \$372 (7.7%) mainly due to higher cost for other operating supplies \$40, Uniforms & Costumes \$60, safety related material & supply \$44, computer supplies \$37, household furniture & consumable \$35, office supplies \$20, construction material \$35, Non Consumable Household Appliances \$9, office furniture \$9, computer software \$66, plant operating material & supplies \$10 and tools \$7.

**PROPOSED ORIGINAL BUDGET 2013**

**Maintenance Expenses \$35,221 – increase of \$4,787 (15.7%)**

1. Plant Maintenance of \$29,862 shows an increase of \$4,822 (19.3%) with the Revised Budget 2012.

The breakdown is itemized as below:

ID No.	DESCRIPTION	Original Budget 2013	Revised Budget 2012	Variance
<b>I ROUTINE ACTIVITIES</b>				
I.1	<b>Shutdown Activities :</b>			
I.1.1	Scheduled - Train F Shutdown (Insulation Replacement)	1,200	-	1,200
I.1.2	Scheduled - Train G Shutdown	700	-	700
I.1.3	Scheduled - Utilities II Shutdown for Train F	50	-	50
I.1.4	Scheduled - Utilities II Shutdown for Train G	50	-	50
I.1.5	Shutdown Plant 15/19/29/35/39	156	150	6
I.1.6	Scheduled - Train C Shutdown	-	700	(700)
I.1.7	Scheduled - Train D Shutdown	-	700	(700)
I.1.8	Scheduled - Train H Shutdown	-	700	(700)
I.1.9	Scheduled - Utilities I Shutdown for Train D	-	50	(50)
I.1.10	Scheduled - Utilities II Shutdown for Train H	-	50	(50)
<b>Total Shutdown Activities</b>		<b>2,156</b>	<b>2,350</b>	<b>(194)</b>
I.2	<b>Maintenance Repairs :</b>			
I.2.1	Maintenance Repairs - Utilities	1,760	1,700	60
I.2.2	Maintenance Repairs - Trains	1,420	1,500	(80)
I.2.3	Maintenance Repairs - Storage & Loading	880	850	30
<b>Total Routine Maintenance Repair</b>		<b>4,060</b>	<b>4,050</b>	<b>10</b>
I.3	<b>Preventive Maintenance :</b>			
I.3.1	Preventive/Predictive Maintenance - Trains	310	325	(15)
I.3.2	Preventive/Predictive Maintenance - Utilities	313	300	13
I.3.3	Preventive/Predictive Maintenance - Storage & Loading and Marine Building	94	90	4
<b>Total Preventive/Predictive Maintenance</b>		<b>717</b>	<b>715</b>	<b>2</b>
<b>Total Routine Activities :</b>		<b>6,933</b>	<b>7,115</b>	<b>(182)</b>
<b>II PLANT &amp; SUPPORT MAINTENANCE WORK PROGRAM</b>				
II.1	<b>Civil Works :</b>			
II.1.1	Repair on-line injection LNG Transfer line I/II insulation (Phase XIII of XV)	300	-	300
II.1.2	Replace wall & roof at Power Generator Utilities Module-2	160	-	160
II.1.3	Repair roof at Surplus Warehouse Building	50	-	50
II.1.4	Painting Plant Area	760	800	(40)
II.1.5	Grass Cutting & Ground Keeping	450	300	150
II.1.6	Repair/Replace Insulation Plant Area	380	400	(20)
II.1.7	Sandblast & Painting LNG Tank 24-D-XX	286	275	11
II.1.8	Repair Fire-Proofing - Phase IX of X	260	250	10
II.1.9	Sandblast & Paint LPG Tank - 17-D-XX (1 tank)	182	175	7
II.1.10	Biennial Routine Cleaning LNG Rundown & Transfer line	146	140	6

**PROPOSED ORIGINAL BUDGET 2013**

ID No.	DESCRIPTION	Original	Revised	Variance
		Budget 2013	Budget 2012	
II.1.11	Replace Asbestos Roof & Wall Compressor Turbine Building Train B	130	-	130
II.1.12	Repair broken concrete structure plant-32 Module-1	104	100	4
II.1.13	Paint Condensate, Fire Water, WTP Storage Tanks	52	50	2
II.1.14	Cleaning Wall & Dome Tanks : 24D-xx, 17D-xx	52	50	2
II.1.15	FRP CW Line Coating at Trains & Utilities (Phase III of V)	26	25	1
II.1.16	Repair Erosion Road from Plant 49 to KM-53	26	25	1
II.1.17	Repair Underground Sewer Line Utilities I & II	26	25	1
II.1.18	Repair Warehouse Roof	-	50	(50)
II.1.19	Repair Outfall trains G/H and behind Lay down J	-	155	(155)
II.1.20	Concrete repair at Utilities Area	-	155	(155)
II.1.21	Replace Asbestos Roof & Wall Compressor Turbine Building Module II	-	120	(120)
II.1.22	Repair broken concrete structure dock-2	-	100	(100)
II.1.23	New concrete at Plant 20 to Ground flare 1 & 3)	-	75	(75)
II.1.24	New road concrete Train D" and beside 19C-7/8 to Old plant 34	-	75	(75)
II.1.25	Repair Dike at Lagoon Sewage Plant	-	30	(30)
<b>Total Civil Works</b>		<b>1</b>	<b>3,390</b>	<b>3,375</b>
				<b>15</b>

**II.2 Mechanical Works**

II.2.1	Replace 1 set (2 ea) 35-E-XX Intercoolers	250	-	250
II.2.2	Replace cooler at 2E-5A/B & 4E-19/24/29AB of Train X	40	-	40
II.2.3	Biennial Inspection of Boilers	416	400	16
II.2.4	Replace Expansion Bellows	148	140	8
II.2.5	Replace Steam Trap	90	85	5
II.2.6	Replace Spring Support	90	85	5
II.2.7	Recertification PSV	85	85	-
II.2.8	Replace Cover, Channel Box Cooling Water Exch. (4-E-1, 4-E-2)	79	75	4
II.2.9	Upgrade Plant 36 Acid plant at Module I & II	42	40	2
II.2.10	Repair/Replace Trash Rack at Module I (phase IV of V)	42	40	2
II.2.11	Repair/cleaning/replace demister pad at plant 21 (21-C-2A/H)	32	30	2
II.2.12	Replace 24" HPS Valve Train E	-	200	(200)
II.2.13	Replace Face Plate (Flange) DB Arm & gasket	-	125	(125)
II.2.14	Inspection of A5E-1	-	100	(100)
II.2.15	Replace corroded pipe/bolts/structure/ platforms Plant-32	-	85	(85)
II.2.16	Repair 31-C-8 (Dome replacement)	-	45	(45)
II.2.17	31-E-174 Internal inspection	-	45	(45)
<b>Total Mechanical Works</b>		<b>1,314</b>	<b>1,580</b>	<b>(266)</b>

**II.3 Machinery Heavy Equipment Works :**

**II.3.1 Machinery Equipment**

II.3.1.1	Incoming Inspection & Outside Repair Turbine Rotor & Nozzle Boxes Ex-H4-KT-1/2/3	2,000	-	2,000
II.3.1.2	Repair Rotor Steam Turbine Gen. (ex 31-PT-3)	250	-	250
II.3.1.3	Replace Mechanical Seals of 4K-1/2/3 leakage	200	-	200
II.3.1.4	Overhaul Condensing Steam Turbine Generator (31-PT-12)	400	100	300
II.3.1.5	Overhaul Non Condensing Steam Turbine Generator (31-PT-9)	350	350	-
II.3.1.6	Overhaul CW Pumps 32-G-XX (1 Units)	312	300	12

**PROPOSED ORIGINAL BUDGET 2013**

<b>ID No.</b>	<b>DESCRIPTION</b>	<b>Original</b>	<b>Revised</b>	<b>Variance</b>
		<b>Budget</b>	<b>Budget</b>	
		<b>2013</b>	<b>2012</b>	
II.3.1.7	Overhaul Air Compressor 35-K-1XX (2 Units)	170	80	90
II.3.1.8	Overhaul Travelling Screens 32-T-xx (1 unit)	83	80	3
II.3.1.9	Recondition Governor & Hydraulic Amplifier	83	80	3
II.3.1.10	Repair rotor of small turbine & pump	63	60	3
II.3.1.11	Inspect/Overhaul 17-K-1 Boil off Compressor	47	45	2
II.3.1.12	Obsolete Utilities pump replacement	42	40	2
II.3.1.13	Overhaul Turbine H4-KT-1/2/3	-	1,350	(1,350)
II.3.1.14	Outside Repair Turbine Rotor Ex-D4-KT-1/2 (for Insurance Spare)	-	270	(270)
II.3.1.15	Recondition Turbine Expander ex 39-KT-14	-	160	(160)
II.3.1.16	Recondition Turbine Expander ex 29-TX-171 (2 units)	-	150	(150)
II.3.1.17	Recondition Balancing Machine (Gear Box)	-	60	(60)
II.3.1.18	Fin Fan Retrofit (phase VI of VI)	-	45	(45)
II.3.1.19	Outside Repair ex. 2-K-x / 24-K Rotor	-	40	(40)
II.3.1.20	Outside repair Ex.B2-KT-1 Rotor	-	40	(40)
<b>Total Machinery Equipment</b>		<b>4,000</b>	<b>3,250</b>	<b>750</b>
II.3.2	<b>Heavy Equipment</b>			
II.3.2.1	Repainting Crane & Heavy Equipment	100	-	100
II.3.2.2	Repair roof Garage shop	50	-	50
II.3.2.3	Concrete slab garage area	40	-	40
II.3.2.4	Replace / Repair Rolling Door 4 Unit (2 unit/year)	25	-	25
II.3.2.5	Normal Maintenance Repair - Mobile Equipment	362	348	14
II.3.2.6	General Overhaul Heavy Equip/Trucks, Vacuum Truck, Fire Truck	208	200	8
II.3.2.7	Preventive/Predictive Maintenance - Mobile Equipment	182	175	7
II.3.2.8	Gen. Overhaul Engine & Hydraulic Sys. (Manitowoc Crane)	156	150	6
II.3.2.9	Repaint Floor Work Shop: HE Shop (phase III of III)	52	50	2
II.3.2.10	General repair Engine & Hydraulic Crane	50	80	(30)
II.3.2.11	Overhaul Dozer & Loader	50	100	(50)
II.3.2.12	General repair Engine Compressors	46	44	2
<b>Total Heavy Equipment</b>		<b>1,321</b>	<b>1,147</b>	<b>174</b>
II.3.3	<b>Marine Boat Equipment</b>			
II.3.3.1	Special Survey TB Bontang 4	200	-	200
II.3.3.2	Special Survey TB Bontang 5	200	-	200
II.3.3.3	Annual Survey 10 unit Tug Boats, Mooring Boats & Patrol Boats	50	-	50
II.3.3.4	Intermediate Survey Tug Boat-2	-	250	(250)
II.3.3.5	Intermediate Survey Tug Boat-6	-	250	(250)
II.3.3.6	Intermediate Survey Tug Boat-7	-	250	(250)
II.3.3.7	Intermediate Survey Mooring Boat - Beras Basah	-	130	(130)
II.3.3.8	Intermediate Survey Mooring Boat - Berebes I	-	130	(130)
II.3.3.9	Intermediate Survey Mooring Boat - Berebes II	-	130	(130)
II.3.3.10	Inspect, Recertification & Repair Patrol Boat-1	-	65	(65)
II.3.3.11	Inspect, Recertification & Repair Patrol Boat-2	-	65	(65)
<b>Total Marine Boat Equipment</b>		<b>450</b>	<b>1,270</b>	<b>(820)</b>
<b>Total Machinery Heavy Equipment Works</b>		<b>5,771</b>	<b>5,667</b>	<b>104</b>

**PROPOSED ORIGINAL BUDGET 2013**

ID No.	DESCRIPTION	Original	Revised	Variance
		Budget 2013	Budget 2012	
II.4	<b>Instrument Works :</b>			
II.4.1	Processor Module CP345 at Utilities-1/2	250	-	250
II.4.2	Drier Valve replacement at Train C-D	200	-	200
II.4.3	Replace Actuator Fisher 667 Dock 2	150	-	150
II.4.4	Transmitter Replacement Train F	150	-	150
II.4.5	Replacement WW505 at 8 FD-Fan Boiler Module II (Phase 1: 3 Ea)	100	-	100
II.4.6	Replace CRT DCS (Phase 1: Train B-D)	75	-	75
II.4.7	Replace Igniter	60	-	60
II.4.8	Train H, ESDV Overhaul	-	170	(170)
II.4.9	Replace Vent valve & Accessories, upstream LNG/LPG Arms Dock #2,	-	125	(125)
II.4.10	Replace Travelling screen Control Valve Phase-I of III	-	100	(100)
II.4.11	Replace de super heater valve, Utilities-1	-	90	(90)
II.4.12	Replace All Transmitter, Utilities-1/2	-	90	(90)
II.4.13	Replace hydraulic solenoid valve malfunction Loading Arms, Dock #2	-	90	(90)
II.4.14	Replace Control Valve with manual hand jack 3"	-	70	(70)
II.4.15	Replace Battery for FCS-HMCS flatted	-	65	(65)
II.4.16	Replace Gas Spring, Amri Valve, Transfer Line	-	40	(40)
II.4.17	Replace Level Switch obsolete Plant-19	-	40	(40)
II.4.18	Replace internal parts of 33-HV-14xx, Bettis HCV	-	40	(40)
II.4.19	Replace LCD ICS Centum CS	-	40	(40)
II.4.20	Replace Modules for ESD/EDP Train H; consist of I/O and Processor	-	35	(35)
II.4.21	Replace Modules for ESD/EDP Train G; consist of I/O and Processor	-	35	(35)
II.4.22	Train A-H, pneumatic trip relay	-	30	(30)
II.4.23	Replace Field Instrument in Chloropac, 32-V-XX	-	25	(25)
II.4.24	Replace Differential Pressure Transmitter of HWS	-	-	-
II.4.25	Repair Operation Keyboard due to malfunction	-	-	-
II.4.26	Replace Level Differential Transmitter of Travelling Screen	-	-	-
<b>Total Instrument Works</b>		985	1,085	(100)
II.5	<b>Electrical Works :</b>			
II.5.1	Replace annunciator utilities area (4 ea)	120	-	120
II.5.2	Replace Coil Condenser	75	-	75
II.5.3	Replace A/C window class I	75	-	75
II.5.4	Replacement of Fire Pump Controller for 49-GM-9/10 and 49-GE-11	75	-	75
II.5.5	Overhaul CWP Motors 32-GM-XX	328	315	13
II.5.6	Improvement Chlorination Plant (32V-5/8 A/B/C)	208	200	8
II.5.7	Replace Chloropac Chlorinating Cells	191	180	11
II.5.8	Replace Power Cable Feeder	186	175	11
II.5.9	Overhaul Power Generators	150	80	70
II.5.10	Replace Battery UPS unit	85	80	5
II.5.11	Overhaul Power supply Unit 32-V-3A/B	80	175	(95)
II.5.12	Overhaul Medium Voltage Motor (4.16 KV Motors)	73	70	3
II.5.13	Replace Air Condenser HVAC	74	70	4
II.5.14	Replace panel Water Well	69	65	4
II.5.15	Overhaul UPS	40	70	(30)

**PROPOSED ORIGINAL BUDGET 2013**

ID No.	DESCRIPTION	Original	Revised	Variance
		Budget 2013	Budget 2012	
II.5.16	Replace Battery Fire Water Engine	-	210	(210)
II.5.17	Replace all Oil, Gauges for HV Transformer	-	145	(145)
II.5.18	Transformers replacement	-	55	(55)
II.5.19	Replace Various Breakers (3 ea)	-	50	(50)
II.5.20	Replace low voltage power cable 32-V- 2A/B/C/D	-	40	(40)
<b>Total Electrical Works</b>		<b>1,829</b>	<b>1,980</b>	<b>(151)</b>
II.6	<b>Various Non AFE Projects</b>			
II.6.1	Various Non AFE Projects (Tr. B - H, Util, I & II, S/L)	93	89	4
<b>Total Various Non AFE Projects</b>		<b>93</b>	<b>89</b>	<b>4</b>
<b>Total Plant &amp; Support Maintenance Work Programs</b>		<b>13,382</b>	<b>13,776</b>	<b>(394)</b>
III	<b>OTHER PLANT &amp; SUPPORT ACTIVITIES</b>			
III.1	<b>Shipping &amp; Harbor :</b>			
III.1.1	Replace Range Light (6 ea)	120	-	120
III.1.2	Repair Navigation Aids	240	170	70
III.1.3	Normal Maintenance Repair Shipping & Harbor	187	180	7
III.1.4	Repair Mooring Boat Jetty	50	44	6
III.1.5	Preventive Maintenance Shipping Repair Patrol Boat-2	-	25	(25)
<b>Total Shipping &amp; Harbor :</b>		<b>597</b>	<b>419</b>	<b>178</b>
III.2	<b>Maintenance Infrastructures :</b>			
III.2.1	Grass Cutting and Ground Keeping PSF Area	125	125	-
III.2.2	CSMS Program	120	120	-
III.2.3	Normal Maintenance Building Repair at Zone II	78	75	3
III.2.4	Normal Maintenance Repair - Warehouse	52	50	2
III.2.5	Repaint Floor of Maintenance Section Shop	53	50	3
III.2.6	Repair Roof of Maintenance Section Shop	32	30	2
III.2.7	Workshop Machine Calibration	32	30	2
III.2.8	Preventive Maintenance - PSF Equipment	26	25	1
<b>Total Maintenance Infrastructures :</b>		<b>518</b>	<b>505</b>	<b>13</b>
III.3	<b>Technical Infrastructures :</b>			
III.3.1	New Permanent Line Facilities For Train E/F/G/H 1C-5 Washing Activities	22	-	22
III.3.2	Circulation Line System for Fire Water Test	20	-	20
III.3.3	Normal PM & Maintenance Repair - Laboratory	52	50	2
<b>Total Technical Infrastructures :</b>		<b>94</b>	<b>50</b>	<b>44</b>
III.4	<b>SHE-Q :</b>			
III.4.1	Normal Maintenance Repair - SHE-Q	130	125	5
III.4.2	Incinerator Multipurpose Maintenance	26	25	1
<b>Total SHE-Q</b>		<b>156</b>	<b>150</b>	<b>6</b>
<b>Total Other Plant &amp; Support Activities :</b>		<b>1,365</b>	<b>1,124</b>	<b>241</b>
<b>Total Plant Maintenance</b>		<b>21,680</b>	<b>22,015</b>	<b>(335)</b>
IV	<b>SPECIAL PROGRAMS</b>			
IV.1	<b>Reliability Programs :</b>			
IV.1.1	Overhaul Loading Arms LD#1 (>10 years)	5,400	-	5,400
IV.1.2	Upgrade Controller & Gear Box replacement Balancing machine	400	-	400

**PROPOSED ORIGINAL BUDGET 2013**

ID No.	DESCRIPTION	Original Budget 2013	Revised Budget 2012	Variance
IV.1.3	LNG Plant Reliability Modelling (Pilot Project on Train H)	200	-	200
IV.1.4	Overhead Crane Assessment (All Area)	150	-	150
IV.1.5	RCM and RAM Analysis Plant 31 and 32	150	-	150
IV.1.6	MI Document Update Phase 1	100	-	100
IV.1.7	Maintenance Procedure Review (All Craft)	100	-	100
IV.1.8	Replace fabric expansion joint of flue gas duct Boiler Module I	50	-	50
IV.1.9	Reliability Workshop	50	-	50
IV.1.10	Reliability Dashboard	50	-	50
IV.1.11	Upgrade Mechanical Governor for 31-PT-2/3/4	50	-	50
IV.1.12	1 Unit of Gland Steam Condenser	30	-	30
IV.1.13	1 Unit of Four way Valves lube oil system of Trains 4K-1/2/3 (CS)	30	-	30
IV.1.14	Install non metallic pipe shoe Plant 38	30	-	30
IV.1.15	Corrosion and Painting Survey in All Plant (reliability Program)	250	250	-
IV.1.16	Inspect FRP underground CW line in Train area (reliability)	100	25	75
IV.1.17	Repair Conductivity meter	52	50	2
IV.1.18	Cap & Plugs at all location (Safety issue, reliability Program)	50	80	(30)
IV.1.19	24" Fire Water Line in Train C/D (reliability Program)	-	400	(400)
IV.1.20	Replace Vacuum Breaker of Discharge Cooling Water Pump (reliability Program)	-	330	(330)
IV.1.21	Replace Drain Control Valve 6" of HWS	-	198	(198)
IV.1.22	Replace Gas Chromatograph Train E	-	180	(180)
IV.1.23	Replace Gas Chromatograph Optichrom Train G	-	135	(135)
IV.1.24	Replace valve positioners to smart positioner on critical item	-	100	(100)
IV.1.25	Train A-H, All Temperature Transmitters in critical equipments, (reliability Program)	-	100	(100)
IV.1.26	LO Coolers of FD Fan Boiler 6~11 - 1 unit	-	85	(85)
IV.1.27	LO Coolers of Cooling Water plant 32 - 1 unit	-	50	(50)
IV.1.28	Repair Gas Detector 20 ea	-	40	(40)
<b>Total Reliability Programs :</b>		<b>7,242</b>	<b>2,023</b>	<b>5,219</b>
IV.2	<b>Plant Inspection :</b>			
IV.2.1	4 years Spring Support surveys all Plants	33	-	33
IV.2.2	NDT & Radiography Examination 2012-2014	115	85	30
IV.2.3	SKPP Fisik PV & HE Module 2 & S/L	75	75	-
IV.2.4	Inspectors for Shutdown Train A/F/G	70	70	-
IV.2.5	Eddy Current test for G4-E-1A/B, G4-E-5 A/B, G4E-6 A/B	67	35	32
IV.2.6	SKPP Fisik - Cranes (All Crane, included Gondola & Lift)	37	37	-
IV.2.7	4 years Steam trap surveys all Plants	-	45	(45)
IV.2.8	SKPP Physical Rotating all plant	-	45	(45)
IV.2.9	Insitu Metallography and RUL Boiler as per UU 1930	-	31	(31)
IV.2.10	SKPP Fisik Electric (Module 2)	-	15	(15)
<b>Total Plant Inspection :</b>		<b>397</b>	<b>438</b>	<b>(41)</b>
IV.3	<b>Plant Equipment Recertification :</b>			
IV.3.1	SKPI all Plant	128	-	128
IV.3.2	SKPP Audit & Fisik Rotating all plant	121	-	121
IV.3.3	SKPP Audit PV & HE Module 2 & S/L	87	87	-
IV.3.4	Biennial Boiler Shutdown	71	55	16
IV.3.5	SKPP Audit + Fisik Electric Module 2	50	25	25
IV.3.6	SKPP Audit Crane All Area	30	44	(14)
IV.3.7	Recertification Tug Boats, Mooring Boat, Patrol Boat(New), New Tug Boat, Class Survey BKI & Sea Worthiness	30	95	(65)
IV.3.8	Migas Inspector for PSV	26	26	-
IV.3.9	SKPP LNG/LPG/HC Condensate Tanks	-	180	(180)
IV.3.10	Recertification of Gondola and Elevator Main Building + lifting gear inspection twice a year as per SHEQ-MS	-	27	(27)
IV.3.11	To Calibrate Gas & Oxygen Tester (CO)	-	25	(25)
<b>Total Plant Equipment Recertification :</b>		<b>543</b>	<b>564</b>	<b>(21)</b>
<b>TOTAL SPECIAL PROGRAMS</b>		<b>8,182</b>	<b>3,025</b>	<b>5,157</b>
<b>GRAND TOTAL PLANT MAINTENANCE 2013</b>		<b>29,862</b>	<b>25,040</b>	<b>4,822</b>

## **Plant Maintenance Work Program Original Budget 2013**

Plant maintenance budget proposal and supporting plant facilities in 2013 to 7 (seven) Trains looks to increased by \$4,822 or 19.3% over from the 2012 Revised Budget of \$25,040 to \$29,862 mainly due to contribution of Overhaul Loading Arm of Dock #01.

The increase is due to the addition of a work program for plant reliability, inspection programs and recertification programs, as well as A decrease in regular wages escalation as follows:

### **I. Routine Activities**

The Plant Maintenance Work Program Original Budget 2013 is \$6,933 which is a decrease of \$182 or 3% from the Revised Budget 2012 of \$7,115.

#### **I.1 Shutdown**

The Shutdown Activities budget 2013 is \$2,156 which is a decrease of \$194 (8%) to cover the Trains F & G scheduled shutdown jobs and Utilities. The complete jobs are as follows:

- I.1.1 Scheduled Train F Shutdown \$1,200 to cover Insulation replacement based on inspection recommendation.
- I.1.2 Scheduled Train G Shutdown \$700, to cover 4 years schedule shutdown (inspect statutory equipment, PSV, insulation replacement based on condition & eddy current tubular inspection/probolog G4-E-1 A/B). Follow up of piping inspection program.
- I.1.3 Scheduled – Utilities II Shutdown for Train F \$50 to cover cleaning basin, desecrator inspection & cooling water outfall repair, inspection of 31-C-35 for 8 years blow off drum, steam leaks repair.
- I.1.4 Scheduled – Utilities II Shutdown for Train G \$50 to cover cleaning basin, desecrator inspection & cooling water outfall repair, inspection of 31-C-35 for 8 years blow off drum, steam leaks repair.
- I.1.5 Shutdown Plant 19/36/35/39 \$156 to cover all maintenance repairs in all plants and unscheduled shutdown.

#### **I.2 Maintenance Repairs**

The Maintenance Repairs budget 2013 \$4,060 is an increase \$10 (0.2%) from Revised Budget 2012 \$4,050 based on the average of actual spending budget in the last 3 years for Plant Maintenance contract (ref.CA-11046), maintenance of Instrumentation equipment contract, maintenance of electrical equipment contract (ref.CA09004), civil works contract (ref.CA-08257) and maintenance contracts for rotating machines (ref.CA10047).

- I.2.1 Maintenance Repairs – Utilities \$1,760 to cover all maintenance repairs in Utilities Areas. It does not include the Maintenance Line Item Work Programs.
- I.2.2 Maintenance Repairs – Trains \$1,420 to cover all maintenance repairs in Trains Areas. It does not include the Maintenance Line Item Work Programs and Train Idle.
- I.2.3 Maintenance Repairs – Storage & Loading and LPG \$880 to cover all maintenance repairs in Storage & Loading and LPG Plant Areas. It does not include the Maintenance Line Item Work Programs.

Above cost has been added an anticipated escalation UMSK for manpower, materials transport and CSMS Program for unit rate Contracts.

### I.3 Preventive Maintenance:

The Preventive Maintenance Programs Original Budget 2013 \$717 is an increase \$2 (0.3%) from Revised Budget 2012 \$715.

This budget covers the PM/PDM jobs of all equipment in the Plant. It is based on the Original Budget 2013 budget spending and to cover the PM jobs of the LPG Plant.

- I.3.1 Preventive/Predictive Maintenance – Trains \$310 to cover all PM/PDM programs in Trains Areas excluding Train Idle.
- I.3.2 Preventive/Predictive Maintenance – Utilities \$313 to cover all PM/PDM programs in Utilities Areas.
- I.3.3 Preventive/Predictive Maintenance – Storage & Loading and Marine building \$94 to cover all of PM/PDM programs in Storage & Loading, Marine building and LPG Plant Areas.

## II. Plant & Support Maintenance Work Program

### II.1 Civil Work Programs

The Civil Work Programs Original Budget 2013 increase \$15 (0.4%) from Revised budget 2012 from \$3,375 to \$3,390 to cover several new work programs as follows. This is to cover the following programs:

- II.1.1 Repair on-line injection LNG Transfer line I/II insulation (Phase XIII of XV) \$300. LNG Transfer Line to Dock #1.
- II.1.2 Replace wall & roof at Power Generator Utilities Module 2 based on environment issue \$160.
- II.1.3 Repair roof at Surplus Warehouse Building \$50 due to some area has leakage.
- II.1.4 Painting Plant Area \$760. For C/W, S/L, Train Module 1&2 and refer. based on contract CA-11016.
- II.1.5 Grass Cutting & Ground Keeping for Zone I & II \$450, additional \$150 compared to previous 2012 budget due to security access control at mangrove area.
- II.1.6 Replace Insulation as per Inspection \$380, as per Inspect survey recommendation and based on contract CA-11057.
- II.1.7 Sandblast & Painting LNG Tank 24-D-XX \$286. As per Inspection Recommendation.
- II.1.8 Repair Fire-Proofing - Phase IX of X \$260, as per Insurance recommendation.
- II.1.9 Sandblast & Painting LPG Tank - 17-D-XX (1 tank) \$182. As per Inspection Recommendation.
- II.1.10 Biennial Routine Cleaning LNG Rundown & Transfer line \$146. Routine Cleaning Fungus.
- II.1.11 Replace Asbestos Roof & Wall Compressor Turbine Building Train B \$130.
- II.1.12 Repair broken concrete structure plant-32 Module-1 \$104 as continuation the previous program.
- II.1.13 Paint Condensate, Fire Water, WTP Storage Tanks \$52.
- II.1.14 Cleaning Wall & Dome Tanks: 24-D-XX, 17-D-XX \$52. Routine Cleaning

- II.1.15 FRP CW Line Coating at Trains & Utilities (Phase III of V) \$26. Continue Paint Fiber Glass piping all Plant.
- II.1.16 Repair Erosion Road from Plant 49 to KM-53 \$26. Routine repair.
- II.1.17 Repair Underground Sewer Line Utilities I & II \$26, routine repair due to corroded.

## II.2 Mechanical Work Programs

The Mechanical Work Programs Original Budget 2013 decrease \$266 (17%) from Revised Budget 2012 from \$1,580 to \$1,314 to cover work programs as follows:

- II.2.1 Replace 1 set (2 Ea) 35-E-XX Intercoolers \$250. For 35-K-1B/C Intercooler.
- II.2.2 Replace cooler at 2E-5A/B & 4E-19/24/29AB \$40. Replace 3 Unit Coolers.
- II.2.3 Biennial Inspection of Boilers \$416. For 10 boilers with increases for escalation.
- II.2.4 Replace 4 ea Expansion Bellows \$148 as per Inspection recommendation
- II.2.5 Routine Steam Trap Replacement \$90 as Inspection recommendation
- II.2.6 Routine Spring Support Replacement \$90 as per Inspection recommendation
- II.2.7 Recertification PSV on module I &II. \$85 during on line.
- II.2.8 Replace Cover and Channel Box Cooling Water Exchanger (4-E-1, 4-E-2) \$79 as Inspection recommendation
- II.2.9 Repair Acid piping lining on Plant 36 Acid plant at Module I & II \$42.
- II.2.10 Repair/Replace Trash Rack at Module I (phase IV of V) \$42. continue program
- II.2.11 Internal inspection on demister pad at plant 21 (21-C-2A/H) \$32.

## II.3 Machinery Heavy Equipment Work Programs

The Machinery Heavy Equipment Work Programs Original Budget 2013 increase by \$104 (2%) from Revised Budget 2012 from \$5,667 to \$5,771 due to cover several new work programs. This budget increase is also caused by the merger of Mobile Equipment and Marine Sections. The programs are as follows:

### II.3.1 Machinery Equipment

- II.3.1.1 Incoming Inspection & Outside Repair Turbine Rotor & Nozzle Boxes Ex-H4-KT-1/2/3 \$2,000. For insurance and maintenance spare (Include rotor & nozzle box repair)
- II.3.1.2 Repair rotor Steam Turbine Generator (ex 31-PT-3) \$250 for maintenance spare rotor back pressure steam turbine module – 1.
- II.3.1.3 Replace Mechanical Seals of 4-K-1/2/3 leakages \$200 due to some compressor seals having leaks and they have more than 15 years in operation.
- II.3.1.4 Overhaul condensing steam turbine Generator (31-PT-12) \$400. The 31-PT-12 has been operating for 20 years. Note : The last year budget was lower than the actual overhaul cost \$ 410.
- II.3.1.5 Overhaul steam turbine Generator (31-PT-9) \$350 that has been operating for 20 years.
- II.3.1.6 Overhaul CW Pumps 32-G-XX (1 Units) \$312. Routine MHE program.
- II.3.1.7 Overhaul Air Compressor 35-K-1XX (2 units) \$170. Note : The last year budget for overhaul only 1 unit.
- II.3.1.8 Overhaul Travelling Screens 32-T-xx (1 units) \$83. Routine MHE program.
- II.3.1.9 Recondition Governor & Hydraulic Amplifier \$83. Routine MHE program.

- II.3.1.10 Repair rotor of small turbine & pump \$63. Routine MHE program.
- II.3.1.11 Inspect/Overhaul 17-K-1 Boil off Compressor \$47. Routine MHE program.
- II.3.1.12 Obsolete Utilities pump replacement \$42. Routine MHE program.

### **II.3.2 Heavy Equipment**

- II.3.2.1 Repainting 10 units Crane & HE \$100. Repainting some heavy equipment.
- II.3.2.2 Replace roof Garage shop \$50. The garage shop roof is corroded and leak.
- II.3.2.3 Provide Concrete slab \$40 for heavy equipment washing facilities.
- II.3.2.4 Replace the broken Rolling Door 4 Units (2 unit/year) \$25.
- II.3.2.5 Normal Maintenance Repair - Mobile Equipment \$362. Based on CA-11017 contract routine repair for Mobile Equipment.
- II.3.2.6 General Overhaul Heavy Equip/Trucks, Vacuum Truck, Fire Truck \$208. Refer: MK012604 + Pump + Propeller shaft + Installation.
- II.3.2.7 Preventive/Predictive Maintenance - Mobile Equipment \$182. Based on CA-08307 contract routine PM for Mobile Equipment.
- II.3.2.8 Special Overhaul Engine & Hydraulic System (Manitowoc Crane) \$156, for BK-013.
- II.3.2.9 Repaint Floor Work Shop: HE Shop (phase III of III) \$52.
- II.3.2.10 General repair Engine & Hydraulic Crane \$50.
- II.3.2.11 Overhaul Dozer & Loader \$50.
- II.3.2.12 General repair Engine Compressors \$46.

### **II.3.3 Marine Boat Equipment**

- II.3.3.1 Special Survey TB- Bontang 5 in 2013 US\$ 200
- II.3.3.2 Special Survey TB- Bontang 4 in 2013 US\$ 200..
- II.3.3.3 Annual Survey 10 unit Tug Boats, Mooring Boats & Patrol Boats in 2013, total US\$ 50.

## **II.4 Instrument Work Programs**

The Instrument Work Programs Original Budget 2013 decreases \$100 (9%) under from Revised Budget 2012 \$1,085 to \$985 for the following work programs:

- II.4.1 Processor Module CP-345 at Utilities-I/II \$250. Due to aging some of processor type CP-345 malfunction by itself. This unit Run to Fail, unpredictable and can't be repaired.
- II.4.2 Drier Valve replacement at Train C-D \$200. Actuator Drier Valve existing obsolete and discontinued. To be replace with other brand by considering it function.
- II.4.3 Replace Actuator Fisher 667 Dock # 2 \$150. Actuator Valve existing Fisher 667 was obsolete and discontinued. To be replacing with other brand by considering its functions for 5 valves.
- II.4.4 Transmitter Replacement Train F \$150. Some of transmitter at Train F discontinued and obsolete will be replace by Smart Transmitter.

- II.4.5 Replacement FD-Fan Speed Control WW-505 \$100. The existing WW-505 obsolete, will be replace by Enhance WW-505E the new type for Boiler 23 – 27 (Phase I: 3 Ea).
- II.4.6 Replace CRT DCS \$75. Some of CRT's at Process Train, Utilities and Storage Loading was problem and can't be repair due to aging.
- II.4.7 Replace Igniter \$60. Some of spark plug and igniter at each burner from Boiler #1~11 was damage. It was difficult to start up Boiler after Shutdown.

## **II.5 Electrical Work Program**

The Electrical Work Programs Original Budget 2013 is a decrease \$151 (8%) from Revised Budget 2012 \$1,980 to \$1,829 for the following work programs:

- II.5.1 Replace annunciator utilities area (4 ea) \$120 for 30-PS-5/6, 30-PS-201, 32-PS-54/64.
- II.5.2 Replace Coil Condenser \$75 for Train E, TGCR Module-2, and MHE shop.
- II.5.3 Replace A/C window class I \$75 Analyzer house all Trains (30 units).
- II.5.4 Replacement of Fire Pump Controller for 49-GM-9/10 and 49-GE-11 \$75.
- II.5.5 Rewind CWP Motors 32-GM-61 and Overhaul 32-GM-2,5,7 \$328.
- II.5.6 Replace Cell & spool chamber Plant (32V-5/8 A/B/C) \$208.
- II.5.7 Replace Chloropac Chlorinating Cells \$191.
- II.5.8 Replace Power Cable Feeder \$186 from Water Well-11 to Water Well-12.
- II.5.9 Overhaul 2 units Power Generators 31-PG-9/12 \$150.
- II.5.10 Replace Battery UPS unit 16-PD-1/2 \$85.
- II.5.11 Overhaul Power supply Unit 32-V- 3A/B \$80.
- II.5.12 Overhaul Medium Voltage Motor (4.16 KV Motors) \$73. For 3 units MV motor.
- II.5.13 Replace Air Condenser HVAC \$74. MCR Module-1.
- II.5.14 Replace panel Water Well \$69 for 3 units.
- II.5.15 Overhaul UPS \$40. Fan replacement all UPS.

## **II.6 Various Non-AFE Projects**

The Operating Projects Original Budget 2013 to cover small modifications with a total cost \$93.

## **III. Other Plant & Support Activities**

The Support Facilities Work Programs Original Budget 2013 is an increase \$241 (21%) from Revise Budget 2012 from \$1,124 to \$1,365 for the following work programs:

### **III.1 Shipping & Harbor**

- III.1.1 Replace Range Light (6 ea) \$120.
- III.1.2 Repair Navigation Aids \$240.
- III.1.3 Normal Maintenance Repair Shipping & Harbor \$187 to cover all repair and Preventive Maintenance included UMSK.
- III.1.4 Repair Mooring Boat Jetty \$50.

### **III.2 Maintenance Infrastructures**

- III.2.1 Grass Cutting and Ground Keeping PSF Area \$125, based on contract CA-10013 contract, included escalation UMSK.
- III.2.2 CSMS Program \$120 for Unit rate Man power Contracts (est. 500 workers).

- III.2.3 Normal Maintenance Repair - all Maintenance Section \$78.
- III.2.4 The Warehouse work Programs \$52 to cover normal maintenance repair.
- III.2.5 Repaint Floor of Maintenance Section Shop \$53, for Electrical shop.
- III.2.6 Repair Roof of Maintenance Section Shop \$32 to repair / replace roof due to broken.
- III.2.7 Workshop Machine Calibration \$32. To meet the quality standards of the lathe in accordance with applicable regulations (ISRS 8, ISO 1708:1989, etc.).
- III.2.8 Preventive Maintenance - PSF Equipment \$26 to cover preventive / predictive maintenance at all maintenance offices.

### **III.3 Technical Infrastructures**

- III.3.1 New Permanent Line Facilities For Train E/F/G/H 1C-5 Washing Activities \$22. During shutdown, to inspect 1C-5, inspector/personnel have to enter the vessel. For safety reason, it is mandatory to wash the vessel to remove remaining heavy hydrocarbons and amine solution. This must be done by flowing steam condensate into the vessel using a flexible hose which is not properly safe. To improve the safety aspect when removing the remaining heavy hydrocarbons and amine solution from 1C-5, it is recommended to use a fix line by installing a new piping system to deliver steam condensate into the vessel thru 1C-6.
- III.3.2 Circulation Line System for Fire Water Test \$20. Fire pump performance test is conducted once a year in all pumps in PT Badak NGL plant site. The problem faced during performance test in Plant 49. Test is conducted by discharging the flow back to water tank. This procedure caused the water tank turbid. A new testing line system shall be constructed to avoid the water in the water tank turbid. Discharging the flow back to tank 49D-1A/B causes the water in that tank turbid, which will affect the cleanliness of supply water to households. Therefore, discharge line shall be rerouted to other tank. Based on discussion with Fire & Safety section and Utilities I section, it is recommended to direct the discharge flow to raw water storage tank 49D-2A/B.
- III.3.3 Normal PM & Maintenance repair for Laboratory \$52 included escalation UMSK.

### **III.4 SHE-Q**

The SHE-Q Department budget \$156 for normal maintenance repair and for periodic maintenance of the Multipurpose Incinerator.

## **IV. Special Programs**

### **IV.1 Reliability Programs**

- IV.1.1 Overhaul Loading Arms LD#1 (>10 years in service) \$5,400. The overhaul interval is 8-10 years based on Manufacturer Recommendation, last overhaul was in 2003.
- IV.1.2 Upgrade Controller & Gear Box replacement balancing machine \$400. To Improve the Reliability of Balancing Machine to support repair process of rotating equipment.
- IV.1.3 LNG Plant Systematic Asset Management Using Reliability Tools (Pilot Project on Train H) \$200. Develop and Implement LNG Plant Reliability Model/System

- in order to have quantitative and qualitative measurement to Maximize Equipment Availability, Enhance Plant Performance, Reduce Maintenance Expense, Optimize Spare Parts, Reduce Risks and Comply with Regulations. In year 2013, Implementation will be on Train H only as the Pilot Project.
- IV.1.4 Overhead Crane Assessment (All Area) \$150. Perform assessment and evaluation of Cranes (especially the Overhead Cranes) which has been obsolete in the spare parts and experiences repetitive problems.
  - IV.1.5 RCM and RAM Analysis Plant 31 and 32 \$150. Establish detail reliability analysis using RCM and RAM approaches for Plant 31 and 32.
  - IV.1.6 Mechanical Integrity (MI) Document Update Phase 1 \$100.  
To update current MI document which was last updated in 2003. ISRS-8 requires updated the SOP (Including MI Document) and other related document every 3 years.
  - IV.1.7 Maintenance Procedure Review (All Craft) \$100  
Review and update current maintenance procedures in all craft including format/content to be in line with Reliability Target.
  - IV.1.8 Replace fabric expansion joint of flue gas duct Boiler Module I \$50.  
To replace the damaged/leaking fabric expansion bellow in Module I Boiler to increase the reliability and availability of Module-I Boilers.
  - IV.1.9 Reliability Workshop \$50. Socialization of reliability concept and target related to plant reliability issues based on People Improvement Program as the part of Reliability Program Campaign.
  - IV.1.10 Reliability Dashboard \$50.  
Develop Online Reliability Executive Summary for Management Information System related to Reliability Parameters, such as PRF, PRUR, Equivalent Loss of Cargoes, Maintenance Cost Spending, etc.
  - IV.1.11 Upgrade Mechanical Governor for Main Lube Oil Pump (MLOP) Turbine Driver of 31-PT-2/3/4 \$50. To upgrade the obsolete mechanical governor of MLOP turbine driver. The replacement will use the hydraulic governor type (TG-13) including brackets.
  - IV.1.12 1 Unit of Gland Steam Condenser \$30.  
To have a spare unit due to repetitive problem (leakage) of gland steam condenser for Reliability improvement.
  - IV.1.13 1 Unit of Four way Valves lube oil system of Trains 4K-1/2/3 (CS to SS) \$30. To have a spare unit (upgrade from CS to SS Material) due to repetitive problem (passing/leakage) of four way valve of lube oil system for Reliability improvement.
  - IV.1.14 Install non metallic pipe shoe Plant 38 \$30.  
To Improve Reliability of Plant 38 by preventing corrosion on intersection of piping and support in HC line.
  - IV.1.15 Corrosion and Painting Survey in All Plant (reliability Program) \$250.  
Follow up of corrosion survey Recommendation from Inspection Section.
  - IV.1.16 Inspect FRP underground CW line in Train area (reliability Program) \$100.  
Inspect of underground flange joint as follow up of water leaking problem on Train C/D.

- IV.1.17 Repair Conductivity meter \$52. To shift budget by purchasing PH meter in order to follow up the PROPER recommendation by online monitoring PH reading on Plant 48.
- IV.1.18 Cap & Plugs at all location (Safety issue, reliability Program) \$50  
As the Follow up of Insurance and ISRS recommendation.

## IV.2 Plant Inspection

- IV.2.1 4 years Spring Support surveys all Plants \$33. Regular inspection as per Long term inspection program.
- IV.2.2 NDT & Radiography Examination 2012-2014 \$115. To cover radiographic and NDT activity for plant inspection and QC.
- IV.2.3 SKPP Fisik PV & HE Module 2 & S/L \$75. Government regulation as Migas requirement every 3 years.
- IV.2.4 Inspectors for Shutdown Tr A/F/G \$70. To cover inspector shutdown for Train A/F/G SD Activity.
- IV.2.5 Eddy Current test for G4-E-1A/B, G4-E-5 A/B, G4E-6 A/B \$67. To cover eddy current inspection during Train D SD as per Long term inspection program.
- IV.2.6 SKPP Fisik - Cranes (All Crane, included Gondola & Lift) \$37. Government regulation as per Migas requirement every 3 years and Depnaker Regulation.

## IV.3 Plant Equipment Recertification

- IV.3.1 SKPI all Plant \$128. Government regulation as per Migas requirement every 3 years.
- IV.3.2 SKPP Audit & Fisik Rotating all plant \$121. Government regulation as per Migas requirement every 3 years.
- IV.3.3 SKPP Audit PV & HE Module 2 & S/L \$87. Government regulation as per Migas requirement every 3 years.
- IV.3.4 Biennial Boiler Shutdown \$71. Government regulation as per UU Uap requirement every 2 years.
- IV.3.5 SKPP Audit+ Fisik Electric Module 2 \$50. Government regulation as per Migas requirement every 3 years.
- IV.3.6 SKPP Audit Crane All Area \$30. Government regulation as per Migas requirement every 3 years.
- IV.3.7 Recertification Tug Boats, Mooring Boat, Patrol Boat(New), New Tug Boat, Class Survey BKI & Sea Worthiness \$30.
- IV.3.8 Migas Inspector for PSV \$26. Government regulation as per Migas requirement.

**PROPOSED ORIGINAL BUDGET 2013**

2. Community Maintenance \$4,833 shows an increase \$30 (0.6%) mainly due to cover inflation for material.

	Original Budget 2013	Revised Budget 2012	Var. Over/ Under \$	Var. Over/ Under %
<b>Routine &amp; Preventive Maintenance</b>				
1 Routine Repair & Prev.Maintenance	2,579	2,517	62	2
2 Grass cutting/ground keeping	969	945	24	3
3 North Buffer zone area	390	374	16	4
4 Lift Station Maint.	46	47	(1)	(2)
5 Mobile Equipment Routine Repair and PM LV	585	570	15	3
<b>Sub Total I</b>	<b>4,569</b>	<b>4,453</b>	<b>116</b>	<b>3</b>
<b>Work Programs</b>				
1 Replace Floor tile of SMP, SMU YPVDP building	59	-	59	100
2 Roof Improvement for PC 6 Project	73	75	(2)	(2.7)
3 AC Windows replacement at Fasum,Office and Houses (Phase III)	49	60	(11)	(18.3)
4 Repaint Roof & Ext/Intr wall Services Dept Bldg	59	-	59	100
5 Roof & Accoustic ceilling replacement at m/Hall TC	24	-	24	100
6 Ditch Improvement for PC 6 Millenium	-	50	(50)	(100)
7 Roof & Floor Improvement for North Bufferzone	-	45	(45)	(100)
8 Repaint Exterior wall at PKB & Chatolic Chuch	-	20	(20)	(100)
9 Repair Guest House Phase II (Lobby,Kitchen,Room Cluster A/B)	-	100	(100)	(100)
<b>Sub Total II</b>	<b>264</b>	<b>350</b>	<b>(86)</b>	<b>(25)</b>
<b>TOTAL COMMUNITY RELATED</b>	<b>4,833</b>	<b>4,803</b>	<b>30</b>	<b>0.6</b>

**Services \$8,933 – increase of \$2,548 (39.9%)**

1. Equipment Rental/Leases/Charter of \$8,326 shows an increase \$2,552 (44.2%) mainly due to higher cost for Tug Boat Charter \$2,475, Rental Vehicle \$57, Others Rental \$31 and Office Equipment Rental \$4. These were partly offset by under run due to Office/Storage Rental \$15.

**Contract Services \$27,459 – increase of \$3,634 (15.3%)**

1. Computer Services of \$1,223 shows an increase \$453 (58.8%) mainly due to Annual Maintenance Support of Oracle.

The breakdown consists of:

	OB2013	RB2012	Variance	
			Over/ (Under)	%
A. Annual Technical Maint Service (75101)				
1 Technical Maintenance service PC & periperal	94	57	37	64.9
2 Technical Maintenance service for 30 server	243	243	-	-
	337	300	37	12.3
B. Annual Technical Support (75103)				
1 ATS ORACLE Server Database	96	125	(29)	(23.2)
2 ATS for Tivoli (back up IBM)	75	-	75	100
3 ATS for Oracle Application	215	345	(130)	(37.7)
	386	470	(84)	(17.9)
C. AMS-Annual Maintenance Support (ATS Application)	500	-	500	100
	500	-	500	100
<b>Total</b>	<b>1,223</b>	<b>770</b>	<b>453</b>	<b>58.8</b>

2. Pipeline Maintenance of \$7,447 shows an increase \$3,024 (68.4%) mainly due to VAT POMA and Penalty \$3,024.

The breakdown consists of:

<u>Description</u>	OB2013	RB2012	Variance	
			Over/ Under	%
<b><u>A. OPEX</u></b>				
<u>Direct Costs:</u>				
- Routine Operations (Ops, Maint, Insp)	325	325	0	0
- Intelligent Survey Inspection	372	372	0	0
- Project Work	293	293	0	0
Total Direct Costs	990	990	0	0
<u>Common Costs:</u>				
- Other Maintenance Programs	946	946	0	0
- Road and ROW Maintenance	796	796	0	0
- Project Work OPEX	219	219	0	0
Total Common Costs	1,961	1,961	0	0
<u>Shared Costs:</u>				
- Routine Services	1,136	1,136	0	0
Total Shared Costs	1,136	1,136	0	0
<u>Overhead Costs:</u>				
- Overhead Common & Shared Costs	283	283	0	0
- VAT POMA and Penalty	3,024	0	3,024	100
Total Overhead Costs	3,307	283	3,024	1,069
Sub Total OPEX	7,394	4,370	3,024	69
<b><u>B. CAPEX</u></b>				
- Commont Cost	48	48	0	0
- Over Head	5	5	0	0
Sub Total CAPEX	53	53	0	0
Total Pipeline Work Program	7,447	4,423	3,024	68

**PROPOSED ORIGINAL BUDGET 2013**

3. Service Orders of \$2,834 shows a decrease \$250 (8.1%) mainly due to lower for special program \$295 and Technical Review Meeting \$50. These were partly offset by higher cost for BOC, BOD and Stakeholder Management \$95.

The breakdown of the costs is as follows:

<u>No.</u>	<u>DESCRIPTION</u>	<u>OB 2013</u>	<u>RB 2012</u>	<u>Var</u>
<b><u>Service Orders - Manufacturing Division</u></b>				
<b><u>Vendor Rep. Trouble Shooting (75401):</u></b>				
1	Sample Delivery Fee	3	5	(2)
2	Vendor Free Visit	27	25	2
		<b>Sub Total</b>	<b>30</b>	<b>30</b>
				<b>0</b>
<b><u>Special Programs (75403):</u></b>				
3	Fire Protection Assessment	0	150	(150)
4	Study Plant-1 Performance by BASF	50	0	50
5	PTAI LNG Bench Marking	30	200	(170)
6	BSO-Failure Analysis	50	75	(25)
		<b>Sub Total</b>	<b>130</b>	<b>425</b>
				<b>(295)</b>
<b>Total Service Orders Manufacturing Div:</b>		<b>160</b>	<b>455</b>	<b>(295)</b>
7	Technical Review Meeting (TRM-Domestic)	100	150	(50)
8	BOC, BOD, Audit Committee & Stakeholder Management	1,707	1,612	95
<b><u>Producers Assistance (75404)</u></b>				
9	TOTAL Seconded/Employees	867	867	0
<b>Total Service Orders</b>		<b>2,834</b>	<b>3,084</b>	<b>(250)</b>

**PROPOSED ORIGINAL BUDGET 2013**

4. General Contract Services of \$14,609 shows an increase \$443 (3.1%) mainly due to higher cost for Long Term and Other Contract Service \$528, University-MOU-Tech.Serv \$120, Office Cleaning \$19, Insect & control \$4, Government agency \$2 and Mail/Courier Services \$1. These were partly offset by under run due to Special Program/Consultant \$227 and Recertification \$4.

The breakdown of the costs is as follows:

	OB 2,013	RB 2012	Variance \$	%
<b>Special Work Programs/Activities :</b>				
<b>New Work Programs/ Activities</b>				
1 Recruiting Program	88	-	88	100
3 Oracle Enhancement	49	-	49	100
4 Revisi PP Guide & SOP	10	-	10	100
<b>Sub Total</b>	<b>147</b>	<b>-</b>	<b>147</b>	<b>100</b>
<b>Continuous Work Programs/ Activities</b>				
5 Establish LNG Academic	292	300	(8)	(3)
6 PMI DOCK II VS Dock I	58	40	18	45
7 Drill & Exercise ISPS Code	39	35	4	11
8 GCG External Assessment	49	30	19	63
9 Hazops Train E & F VS Train ABCD, Utilities I & Storage & Loading	49	90	(41)	(46)
10 Biaya Assessment 34 Manager & 75 Supv	68	60	8	13
11 Public Accountant & Auditors	78	91	(13)	(14)
12 Salary Survey of Regional Base & Jakarta and Executive	18	18	-	-
13 ISO 9001 : 2008 Recertification & EMS ISO 14001 : 2004 Surveillance	18	18	-	-
14 PROPER and Earth Day	54	55	(1)	(2)
15 ISRS-8 OMEGA Assessment	97	100	(3)	(3)
16 Integrated SHE-Q MS	34	35	(1)	(3)
17 Migas Audit	10	10	-	-
18 Aviation Safety Advisor (ASA)	141	145	(4)	(3)
19 EAP (Empl. Asst. Program)	19	29	(10)	(34)
20 Knowledge Management System	29	50	(21)	(42)
21 EPDP	252	280	(28)	(10)
22 Fugitive Analyst, biodiversity Programs	13	13	-	-
23 Develop SOP (Phase III) & Work Instruction for PM & PDM Fire System	-	45	(45)	(100)
24 Market Price Survey & Price Updating	-	20	(20)	(100)
25 Contract for Creating SOP PRF Report and PODS System	-	20	(20)	(100)
26 Contract of Equipment Critical Rating (ECR), Equipment Hierarchy & Failure Mapping-Phase 1	-	100	(100)	(100)
27 HRD Blue Print (Updated)	-	55	(55)	(100)
28 SMK3 (OHSAS 18001)	-	20	(20)	(100)
29 To Create Environment Control Booklet for Environment Control Promotion	-	12	(12)	(100)
30 Penerbitan Sertifikat operasi Bandar Udara PT Badak Bontang	-	21	(21)	(100)
<b>Sub Total</b>	<b>1,318</b>	<b>1,692</b>	<b>(374)</b>	<b>(22)</b>

**PROPOSED ORIGINAL BUDGET 2013**

		<b>OB</b>	<b>RB</b>	<b>Variance</b>	
		<b>2,013</b>	<b>2012</b>	<b>\$</b>	<b>%</b>
31	Office Cleaning Services	1,456	1,437	19	1
32	Insect & Pest Control	284	280	4	1
	<b>Sub Total</b>	<b>1,740</b>	<b>1,717</b>	<b>23</b>	<b>1</b>
	<b><u>Plant Equipment Recertification</u></b>				
33	ISO 17025 Surveillance & Consultant	8	12	(4)	(33)
	<b>Sub Total</b>	<b>8</b>	<b>12</b>	<b>(4)</b>	<b>(33)</b>
34	Hazardous Waste Treatment & Disposal Handling (Vol 500 ton)	97	100	(3)	(3)
35	Legal Operational Assistance & Expenses	78	75	3	4
36	Mail/Courier Service	47	46	1	2
37	Government Agency for Harbor	12	10	2	20
	<b>Sub Total</b>	<b>234</b>	<b>231</b>	<b>3</b>	<b>1</b>
	<b><u>Various Lumpsum Contracts</u></b>				
38	Hearing Conservation Program	49	50	(1)	(2)
39	Bio monitoring health hazard	15	15	-	-
40	Trainee Management Program	146	190	(44)	(23)
41	Health Education Program	10	16	(6)	(38)
42	Security Service Fee (213 Empl.)	1,778	1,400	378	27
43	Contract Crew Tug Boat and Patrol Boat (base on actual contract)	894	909	(15)	(2)
44	CSMS Program Non Production Division	152	150	2	1
45	Maintenance and Service for Web Application (Contract Programmer)	76	75	1	1
46	Programmer Analyst	71	70	1	1
47	Contract for Lab. Analyst (15 Empl.)	57	56	1	2
48	Driver for Shuttle Office	101	100	1	1
49	Library & Filing renovation building	-	23	(23)	(100)
50	Various Lumpsum Contract & Others	7,433	7,200	233	3
	<b>Sub Total</b>	<b>10,782</b>	<b>10,254</b>	<b>528</b>	<b>5</b>
	<b><u>M.O.U. - Universities</u></b>				
51	MOU-Universitas	248	0	248	100
52	MOU-SOP, Tech.Services, etc	54	50	4	8
53	Conduct Environmental Monitoring	78	80	-2	-3
54	MOU-Universitas	-	100	(100)	(100)
55	Studies with LAPI/ITB/ITS - Consultant Service for structure assesment for JETTY DOCK I and area modul I	-	30	(30)	(100)
	<b>Sub Total</b>	<b>380</b>	<b>260</b>	<b>120</b>	<b>46</b>
	<b>Total Other Contract Services</b>	<b>14,609</b>	<b>14,166</b>	<b>443</b>	<b>3.1</b>

**PROPOSED ORIGINAL BUDGET 2013**

**Other Expenses \$9,942 - increase of \$299 (3.1%)**

- Community Development of \$1,251 shows a decrease of \$33 (2.6%).  
The breakdown is:

<u>NO.</u>	<u>DESCRIPTION</u>	OB <u>2013</u>	RB <u>2012</u>	Variance	
				Over/ Under \$	%
1	COMMUNITY DEV.- EDUCATION	383	367	16	4.4
2	COMMUNITY DEV.- INFRA STRUKTUR	80	75	5	6.7
3	COMMUNITY DEV.- RELIGIUS	124	106	18	17.0
4	COMMUNITY DEV.- SOCIETY EMPOWERMENT	428	373	55	14.7
5	COMMUNITY DEV.- SPORT, ART AND CULTURE	74	60	14	23.3
6	STAKEHOLDERS MANAGEMENT	93	232	(139)	(59.9)
7	COMDEV SOCIETY HEALTH	35	36	(1)	(2.8)
8	COMMUNITY RELATION AFFAIRS	34	35	(1)	(2.9)
<b>TOTAL COMMUNITY DEVELOPMENT</b>		<b>1,251</b>	<b>1,284</b>	<b>(33)</b>	<b>(2.6)</b>
		=====	=====	=====	=====

- Insurance of \$2,535 shows an increase of \$186 (7.9%) mainly due to cover for Plant & Property Insurance \$186 based on market survey.
- Taxes of \$2,372 shows a decrease of \$136 (5.4%) mainly due to lower cost for Corporate Tax \$136.
- Miscellaneous of \$1,204 shows an increase of \$258 (27.3%) mainly due to higher cost for PKB VII \$145 and PTB as host for LNG Borneo \$113.

**Recoveries & Allocations \$3,371 - increase of \$923 (37.7%)**

- Regular recoveries of \$1,117 shows an increase of \$93 (9.1%) mainly due to higher receipt recoveries from allocation for Pertamina reimbursement of VAT late payment penalty \$93.
- Non Regular Recoveries of \$1,299 shows an increase of \$542 (71.6%) mainly due to higher receipt recoveries for on the job Training \$542.
- Allocations of \$955 shows an increase of \$288 (43.2%) mainly due to higher receipt for allocation work orders \$288.

**PROPOSED ORIGINAL BUDGET 2013**  
**SUMMARY OF CAPITAL EXPENDITURES**  
(In Thousand of US Dollars)

<u>Category</u>	Original Budget 2013	Revised Budget 2012	Variance Over/ (Under)	Prior Year Cost	Carry Over Cost	Total Project Forecast
<b>Tier I Expenditures</b>						
<b>US\$ 50 or More</b>						
- Carry Forward	-	-	-	-	-	-
- Current Year	2,777	2,769	8	-	-	2,777
- New Projects, Purchase	-	50	(50)	-	-	-
<b>Minor Projects (US\$50 or Less)</b>						
- Carry Forward	-	-	-	-	-	-
- Current Year	345	283	62	-	-	345
- New Projects, Purchase	-	20	(20)	-	-	-
<b>Total Tier I</b>	<b>3,122</b>	<b>3,122</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>3,122</b>
<b>Tier II Expenditures</b>						
- Carry Forward	4,589	1,268	3,321	1,122	-	5,711
- Current Year / New Projects	985	1,122	(137)	-	2,188	3,173
<b>Total Tier II</b>	<b>5,574</b>	<b>2,390</b>	<b>3,184</b>	<b>1,122</b>	<b>2,188</b>	<b>8,884</b>
<b>Tier III Expenditures</b>						
- Carry Forward	5,903	14,326	(8,423)	2,652	1,250	9,805
- Current Year / New Projects	553	20	533	-	3,460	4,013
<b>Total Tier III</b>	<b>6,456</b>	<b>14,346</b>	<b>(7,890)</b>	<b>2,652</b>	<b>4,710</b>	<b>13,818</b>
<b>Owner Cost Project</b>						
- Current Year / New Projects	465	700	(235)	-	-	465
<b>Total Owner Cost</b>	<b>465</b>	<b>700</b>	<b>(235)</b>	<b>-</b>	<b>-</b>	<b>465</b>
<b>Total Capital Expenditures</b>	<b>15,617</b>	<b>20,558</b>	<b>(4,941)</b>	<b>3,774</b>	<b>6,898</b>	<b>26,289</b>

**PROPOSED ORIGINAL BUDGET 2013**

**PROPOSED ORIGINAL BUDGET 2013**  
**TIER I NEW PROJECTS**  
 (In Thousands of Dollars)

No.	AFE No.	Title	Dept	Qtr	Qtr	Qtr	Qtr	Original	Prior	Carry	Total			
				1	2	3	4	Budget 2,013	Year Cost	Over Cost	Project Cost			
<b>US\$ 50 or More</b>														
<b>Current Year Purchase</b>														
1	411131XX	Excavator Mounted Vibrator Additional	Maint	-	-	75	-	75	-	-	75			
2	411131XX	Gondola Suspended Scaffold (1 unit) Additional	Maint	-	-	-	122	122	-	-	122			
3	411132XX	Multi Operator Welding Machine (1 unit) Replacement	Maint	-	-	-	50	50	-	-	50			
4	411132XX	Insulation Diagnostic Tester (1 unit) Replacement	Maint	-	-	150	-	150	-	-	150			
5	411132XX	Magnetic Particle Inspection Equipment (1 unit)	Maint	-	-	-	194	194	-	-	194			
6	411132XX	Compact Tractor (1 unit) Replacement	Maint	-	-	-	125	125	-	-	125			
7	411132XX	Continuous Emission Monitoring Replacement	Maint	-	-	-	150	150	-	-	150			
8	411132XX	Speed Controller Train G Refrigerant Compressor (3 units)	Maint	-	-	90	-	90	-	-	90			
9	411132XX	Boiler Controller Replacement	Maint	-	-	-	100	100	-	-	100			
10	411132XX	Gas Chromatograph (2 units) Replacement	Maint	-	-	260	-	260	-	-	260			
<b>Sub Total</b>														
				-	-	575	741	1,316	-	-	1,316			
11	411132XX	Security Master Plant SMP (4 units) Replacement	IT	-	-	50	-	50	-	-	50			
12	411132XX	Marine & Aviation Radio (1 set) Replacement	IT	-	-	50	-	50	-	-	50			
13	411132XX	Integrated Monitoring Communication System of HMCS-EOCC-MST	IT	-	-	-	100	100	-	-	100			
<b>Sub Total</b>														
				-	-	100	100	200	-	-	200			
14	411132XX	Engine Speed Boat (6 units) replacement	Serv	-	-	-	111	111	-	-	111			
15	411132XX	Pick Up 4x2 Diesel (3 units) Replacement	Serv	-	-	-	63	63	-	-	63			
16	411132XX	Station Wagon Diesel (6 units) Replacement	Serv	-	-	-	164	164	-	-	164			
17	411132XX	Minibus 10 seat for Shuttle Airport (2 units) Replacement	Serv	-	-	-	70	70	-	-	70			
18	411132XX	Micro Bus AC (3 units) Replacement	Serv	-	-	-	432	432	-	-	432			
19	411132XX	Big Bus AC (2 units) Replacement	Serv	-	-	-	329	329	-	-	329			
20	411132XX	Ground Power Electric Airport (1 unit) Replacement	Serv	-	-	-	92	92	-	-	92			
<b>Sub Total</b>														
				-	-	-	1,261	1,261	-	-	1,261			
<b>Total Current Year US\$ 50 or More</b>														
				-	-	675	2,102	2,777	-	-	2,777			
<b>Total Minor Projects (US\$50 or Less)</b>														
				-	-	132	213	345	-	-	345			
<b>Total Tier I</b>														
				-	-	807	2,315	3,122	-	-	3,122			

**PROPOSED ORIGINAL BUDGET 2013**  
**DESCRIPTION OF TIER I – NEW PROJECTS**  
(In Thousands of US Dollars)

**US\$50 or More**

**1. Excavator Mounted Vibration - \$75**

It is proposed to purchase 1 unit Excavator Mounted Vibrator; the Excavator Mounted Vibrator is required for supporting landslide and piling job. The existing machine in service since 1996 has been broken and could not be repaired due to obsolete. For the time being this tool is provided by the contractor however, the quality does not meet with PT Badak standard. By purchasing this tool, it will comply with PT Badak standard.

**2. Gondola Suspended Scaffold - \$122**

It is proposed to purchase 1 unit Gondola Suspended Scaffold. The Gondola / Suspended Scaffold are purchased to support cleaning, sandblasting, painting and other works that are at high altitude. We currently have one pair but not enough to support the work. Formerly, this tool is provided by the contractor however, the quality did not meet with PT Badak standard. By purchasing this tool, it will comply with PT Badak standard.

**3. Replacement of Multi Operator Welding Machine - \$50**

It is proposed to purchase 1 (one) unit Multi Operator Welding Machine. The existing Rectifier Welding Machine (Multi Operator Welding Machine) which has been running since 1977 is in bad condition and could not be repaired. We propose purchasing 1 (one) Rectifier Welding Machine (same size existing) to replace the above damage machine.

**4. Replacement of Insulation Diagnostic Tester - \$150**

It is proposed to purchase 1 (one) unit Insulation Diagnostic Tester to replace the old one that was damaged and cannot be repaired.

The tool is used to assess the current condition of critical power apparatus insulation on regular Preventive Maintenance Task for Power Cable, Generator, Motor and Transformer. Without this tool, condition of power apparatus insulation cannot be assessed and evaluated whether the insulation is good condition or not. Furthermore, the insulation condition for critical power apparatus cannot be monitored, where the impact can be suddenly short circuit and disturb process area (if the equipment support to the process area) and the equipment will stop for long period due to insulation damage or broken as a result no insulation diagnostic to assess critical power apparatus insulation.

**5. Replacement of Magnetic Particle Inspection Equipment - \$194**

It is proposed to purchase 1 (one) unit Magnetic Particle Inspection Equipment to replace the broken one that has been used since 1988.

The Magnetic Particle Inspection Equipment is use for supporting the M&HE shop works for inspecting the machine parts to indicate defective, crack, quality of welding that is considered critical(eq. rotor turbine, pump, compressor, etc.).

**6. Replacement of Compact Tractor - \$125**

It is proposed to purchase 1 (one) unit compact tractor to replace the old one that has been used since 1982 and now in bad condition.

This Compact Tractor is proposed to support daily Maintenance activities and especially during train shutdown.

7. **Replacement Continuous Emission Monitoring - \$150**

It is proposed to purchase Continuous Emission Monitoring to replace the existing CEM unit of Boiler 30 Module 2 that has experienced out of service due to component failure. In addition, this equipment is required for PROPER and ISO 14001 compliance.

8. **Speed Controller Train G Refrigerant Compressor (3 units) - \$90**

It is proposed to replace the turbine speed controller for fuel gas compressors 2K-1/2 and refrigerant compressors 4K-1/2/3 during Train G shutdown. Since these compressors are critical on LNG production, periodic replacement of steam turbine speed control is required on each shutdown to ensure operational availability of these equipments. Meanwhile, since the existing type (Woodward old-style 505) is already obsolete, it is required to replace with new type (Woodward 505 Enhanced) with some modification at local enclosure and wiring.

The work scopes of this project are as follows:

- Detail engineering design.
- Procurement of new type of turbine speed controller for refrigerant and fuel gas compressors Train G.
- Install new type of turbine speed controller for refrigerant and fuel gas compressors Train G.

This project should be executed during next Train G shutdown scheduled on May 2013.

9. **Replacement Boiler Controller - \$100**

It is proposed to replace existing single loop boiler controller modules for 31F26-31F30 because the existing controller modules (type YS-80) which installed since 2001 has already been obsolete and the service support has been discontinued since 2008. The controllers are required to control fuel gas pressure, fuel gas flow, BFW flow, air flow, and total required is 6 ea per boiler. Currently, the existing controller modules are operating without spare part and potentially reduce LNG production if failure occurred on these modules.

The work scopes of this project are as follows:

- Detail engineering design.
- Procurement of 36 ea new single loop controller modules (type YS-1000) for boiler 31F26-31F30.
- Install new single loop controller modules at 31F26-31F30.

This project should be completed on 2013.

10. **Gas Chromatograph - \$260**

It is proposed to purchase 2 units Gas Chromatograph to replace the existing the original Gas Chromatograph installed since 1997 at Train G had obsoletealready and need to be replaced with the latest version one. Please notice the part and service support was discontinued since 2006.

11. **Replacement of Security Master Plan (SMP) Equipments (4 units) - \$50**

It is proposed to purchase 4 (four) units CCTV of Security Master Plant system to replace the old ones that have been operated since 2005 and now are in bad condition and not reliable used.

**12. Replacement of Marine & Aviation Radio (1 set) - \$50**

It is proposed to purchase 1(one) set Marine & Aviation Radio to replace the broken one after striking by lightening. In addition, the old one has been operated since 2005.

This equipment is required for support coastal station activity to communicate with LNG vessel and ATC operator to airplane pilot at PT.Badak Airport.

**13. Remote Hazard Monitoring & Integrated Comm. System for MECC-EOCC-MST - \$100**

It is proposed to purchase Integrated Monitoring Communication System of HMCS-EOCC-MST for emergency response, information from hazard monitoring system and integrated communication between MECC-MST and OECC are needed to assist management team making decisions accurately and quickly.

**14. Replacement of Engine Speed Boat (6 units) - \$111**

It is proposed to purchase 6 (six) unit of speedboats engines to replace the old ones that have been used since 1998 and now are broken, uneconomically repaired and obsolete.

The speedboat mostly used to support marine patrol, buoy inspection, carrying maintenance tools repairing cooling water and loading dock.

**15. Replacement Pick Up 4x2 Diesel (3 units) - \$63**

It is proposed to purchase 3 units Pick Up 4x2 Diesel to replace the existing units has been used since 1993 (2 units) and 2000 (13 units). Uneconomical to repair and technically unfit for safety. This diesel vehicle to support operation in zone I.

**16. Replacement Station Wagon Diesel (6 units) - \$164**

It is proposed to purchase 6 units Station Wagon Diesel to replace the existing units has been used since 1992 (1 unit) and 1993 (12 units). Uneconomical to repair and technically unfit for safety. This diesel vehicle support operation in zone I.

**17. Replacement Mini Bus 10 seat for Shuttle Airport (2 units) - \$70**

It is proposed to purchase 2 units Mini Bus for Shuttle Airport to replace the existing bigger capacity to save time during shuttle service. The existing capacity is only for 5 seats. Condition of cars area not appropriate.

**18. Replacement Micro Bus AC (3 units) - \$432**

It is proposed to purchase 3 units Micro Bus AC to replace the existing units has been used since 1989 (1 unit) and 1990 (2 units). Condition not appropriate, obsolete and technically not fit to safety aspect. Uneconomically to repair, will be junked soon after new buses arrive.

**19. Replacement Big Bus AC (2 units) - \$329**

It is proposed to purchase 2 units Big Bus AC to replace the existing units has been used since 1989 (22 years). Condition not appropriate, obsolete and technically not fit to safety aspect. Uneconomically to repair, will be junked.

**20. Replacement Ground Power Electric Airport (1 unit) - \$92**

It is proposed to replace 1 unit Ground Power Electric Airport to replace the existing unit has been used since 1985 and in broken condition. Obsolete and no spare part available, uneconomical to repair. This unit is for Aircraft Engine Start up.

**PROPOSED ORIGINAL BUDGET 2013**

**PROPOSED ORIGINAL BUDGET 2013**

**TIER II PROJECTS**

(In Thousands of Dollars)

Rate 9300 Per USD

No.	<u>AFE No.</u>	<u>Title</u>	<u>Dept</u>	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Original Budget 2013	Prior Year Cost	Carry Over Cost	Total Project Cost
<b>Carry Forward</b>											
1	42012201	WW501 at 31-PG-10/13/14 Replacemnet	Tech	6	29	240	300	575	50	-	625
2	42012202	Fire Detector System at Guest House, Mass hall and Apartement Building	Tech	15	130	157	35	337	33	-	370
3	42012203	Fire Protection & Detection System in Transmitter and PABX Room at communication Building.	Tech	8	52	95	20	175	25	-	200
4	42012204	35K-3/4/5/6 Air Compressor Control System Replacement at Utilities II	Tech	10	45	105	340	500	10	-	510
5	42012207	Retrofit Obsolete Cordless System at Dock-2 and Install Cordless System at Dock-1	Tech	6	40	320	44	410	10	-	420
6	42012208	Yokogawa Centum CS HMI Retrofit at Utilities II	Tech	18	36	480	310	844	56	-	900
7	42012209	HMI and SOE Honeywell Plant scape Replacement at Train-C/D/E	Tech	4	28	170	22	224	41	-	265
8	42012211	Fire Protection System at Fuel Gas KOD 31C-23/28	Tech	10	35	120	25	190	10	-	200
<b>Sub Total</b>				77	395	1,687	1,096	3,255	235	-	3,490
9	42012210	Fire water Pumps realibility Improvement	SHEQ	12	15	320	84	431	69	-	500
10	42012206	Roof & Concrete Deck Improvement at Al-Kautsar Mosque	Proj	10	48	106	56	220	30	-	250
11	42012205	Main Warehouse Roof Replacement Phase II	Maint	22	120	145	63	350	10	-	360
12	42012212	PT.Badak Land Certification	Legal	80	30	40	183	333	778	-	1,111
<b>Total Carry Forward</b>				201	608	2,298	1,482	4,589	1,122	-	5,711
No.	<u>AFE No.</u>	<u>Title</u>	<u>Dept</u>	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Original Budget 2013	Prior Year Cost	Carry Over Cost	Total Project Cost
<b>Current Year</b>											
1	420132XX	VTMS 7200 (35K-3 & 15K-1) Replacement	Maint	-	-	25	25	50	-	150	200
2	420132XX	Radial Drill Machine (1 unit) Replacement	Maint	-	-	-	200	200	-	150	350
3	420132XX	FAMS for PSF & Community Area Replacement	Maint	-	-	10	10	20	-	130	150
4	420132XX	Dry Chemical in 24D-6 Replacement	Maint	-	-	10	10	20	-	130	150
<b>Sub Total</b>				-	-	45	245	290	-	560	850
5	420132XX	MP-LP Steam Letdown Station at Train G & H Utilities II	Opt	-	2	3	10	15	-	125	140
6	420132XX	Cable 48FDR-18/28 Additional	Opt	-	10	10	20	40	-	330	370
7	420132XX	Triple Egent Fire Truck With Mercedes Benz	Opt	-	-	-	400	400	-	550	950
<b>Sub Total</b>				-	12	13	430	455	-	1,005	1,460
8	420132XX	Emergency Stair at SD Vidatra	Tech	-	5	10	10	25	-	18	43
9	420132XX	UPS 37-PU-1 Replacement at Radio Room	Tech	-	5	5	10	20	-	150	170
10	420132XX	Pre-Heater Additional in Regeneration Gas Circuit to Reduce High Pressure Steam Consumption	Tech	-	45	50	100	195	-	455	650
<b>Sub Total</b>				-	55	65	120	240	-	623	863
<b>Total Current Year</b>				-	67	123	795	985	-	2,188	3,173
<b>Total Tier II</b>				201	675	2,421	2,277	5,574	1,122	2,188	8,884

**PROPOSED ORIGINAL BUDGET 2013  
DESCRIPTION OF TIER II – CARRY FORWARD  
(In Thousands of US Dollars)**

**1. WW501 at 31-PG-10/13/14 Retrofit - \$575**

The detailed engineering design is expected to be completed in July 2012. Deliveries of all procurement items are expected to be arrived by March 2013. The construction contract is scheduled to be awarded in March 2013 and start in April 2013. The overall completion is targeted by 4<sup>th</sup> quarter 2013. The total funding for this project will remain the same as per the approved AFE budget i.e. \$625.

**2. Fire Detection System at Guest House, Messhall and Apartment Building - \$337**

The detailed engineering design was completed. Deliveries of all procurement items are expected to be arrived by February 2013. The construction contract is scheduled to be awarded in February 2013 and start in March 2013. The overall completion is targeted by 4<sup>th</sup> quarter 2013. The total funding for this project will remain the same as per the approved AFE budget i.e. \$370.

**3. Fire Protection & Detection System in Transmitter and PABX Room at Communication Building - \$175**

The detailed engineering design is expected to be completed in August 2012. Deliveries of all procurement items are expected to be arrived by March 2013. The construction contract is scheduled to be awarded in March 2013 and start in April 2013. The overall completion is targeted by 4<sup>th</sup> quarter 2013. The total funding for this project will remain the same as per the approved AFE budget i.e. \$200.

**4. 35K-3/4/5/6 Air Compressor Control System Retrofit at Utilities II - \$500**

The detailed engineering design is expected to be completed in September 2012. Deliveries of all procurement items are expected to be arrived by April 2013. The construction contract is scheduled to be awarded in April 2013 and start in May 2013. The overall completion is targeted by 4<sup>th</sup> quarter 2013. The total funding for this project will remain the same as per the approved AFE budget i.e. \$510.

**5. Retrofit Obsolete Cordless System at Dock-2 and Install New Cordless System at Dock-1 - \$410**

The detailed engineering design is expected to be completed in August 2012. Deliveries of all procurement items are expected to be arrived by April 2013. The construction contract is scheduled to be awarded in April 2013 and start in May 2013. The overall completion is targeted by 4<sup>th</sup> quarter 2013. The total funding for this project will remain the same as per the approved AFE budget i.e. \$420.

**6. Yokogawa Centum CS HMI Retrofit at Utilities II - \$844**

The detailed engineering design is expected to be completed in August 2012. Deliveries of all procurement items are expected to be arrived by April 2013. The construction contract is scheduled to be awarded in April 2013 and start in May 2013. The overall completion is targeted by 4<sup>th</sup> quarter 2013. The total funding for this project will remain the same as per the approved AFE budget i.e. \$900.

**7. HMI and SOE Honeywell Plantscape Retrofit at Trains-C/D/E - \$224**

The detailed engineering design is expected to be completed in August 2012. Deliveries of all procurement items are expected to be arrived by March 2013. The construction contract is scheduled to be awarded in April 2013 and start in May 2013. The overall completion is targeted by 4<sup>th</sup> quarter 2013. The total funding for this project will remain the same as per the approved AFE budget i.e. \$265.

**8. Fire Protection System at Fuel Gas KOD 31C-23/28 - \$190**

The detailed engineering design is expected to be completed in July 2012. Deliveries of all procurement items are expected to be arrived by March 2013. The construction contract is scheduled to be awarded in April 2013 and start in May 2013. The overall completion is targeted by 4<sup>th</sup> quarter 2013. The total funding for this project will remain the same as per the approved AFE budget i.e. \$200.

**9. Fire Water Pumps Reliability Improvement - \$431**

The detailed engineering design was completed. Deliveries of all procurement items are expected to be arrived by January 2013. The construction contract is scheduled to be awarded in February 2013 and start in March 2013. The overall completion is targeted by 4<sup>th</sup> quarter 2013. The total funding for this project will remain the same as per the approved AFE budget i.e. \$500.

**10. Roof & Concrete Deck Improvement at Al-Kautsar Mosque - \$220**

The detailed engineering design is expected to be completed in July 2012. Deliveries of all procurement items are expected to be arrived by January 2013. The construction contract is scheduled to be awarded in February 2013 and start in March 2013. The overall completion is targeted by 4<sup>th</sup> quarter 2013. The total funding for this project will remain the same as per the approved AFE budget i.e. \$250.

**11. Main Warehouse Roof Replacement Phase II - \$350**

The detailed engineering design was completed. Deliveries of all procurement items are expected to be arrived by February 2013. The construction contract is scheduled to be awarded in February 2013 and start in March 2013. The overall completion is targeted by 4<sup>th</sup> quarter 2013. The total funding for this project will remain the same as per the approved AFE budget i.e. \$360.

**12. PT. Badak Land Certification - \$333**

Refer to the Uanomalous Regulation issued by Ministry of Finance (Menkeu) and Chief of Land Affairs Board(Ka BPN) No. 186/PMK.06/2009 and No. 24 Year 2009, PT Badak NGL Plant Site Area should be certified with Status "Hak Pakai".

To protect Illegal Claims.

**PROPOSED ORIGINAL BUDGET 2013**  
**DESCRIPTION OF TIER II – NEW PROJECTS**  
(In Thousands of US Dollars)

**1. Replacement VTMS 7200 (35K-3 & 15K-1) - \$200**

It is proposed to purchase VTMS 7200 (35K-3 & 15K-1). The original VTMS 7200 installed since 1989 at 35K-3 and 15K-1 had obsolete already and need to be replaced with the latest version one. Please notice the part and service support was discontinued since 2000.

**2. Replacement of Radial drill Machine - \$350**

It is proposed to purchase 1 (one) unit Radial drill Machine to replace the existing machine was in service since 1977 which it has broken and could not be repaired due to obsolete. The Radial Drilling Machine is required for supporting the machine shop works.

**3. Replacement FAMS for PSF & Community Area - \$150**

It is proposed to retrofit the Fire Alarm Monitoring System (FAMS) at Fire Station with new hardware and software, and to integrate Fire Alarm Control Panel (FACP) at all PSF and community buildings. The existing FAMS is being connected via Fiber Optic to 5 FACPs in Maintenance, Warehouse, Marine, Laboratory and MPB. However, due to connection failure and server obsolete (installed since 1993), currently the existing FAMS is not being able to monitor these FACPs. Meanwhile, it is also proposed to enhance the coverage of FAMS to other buildings (PSF and community) to enhance the monitoring scope of Fire & Safety personnel in case of emergency/fire situation.

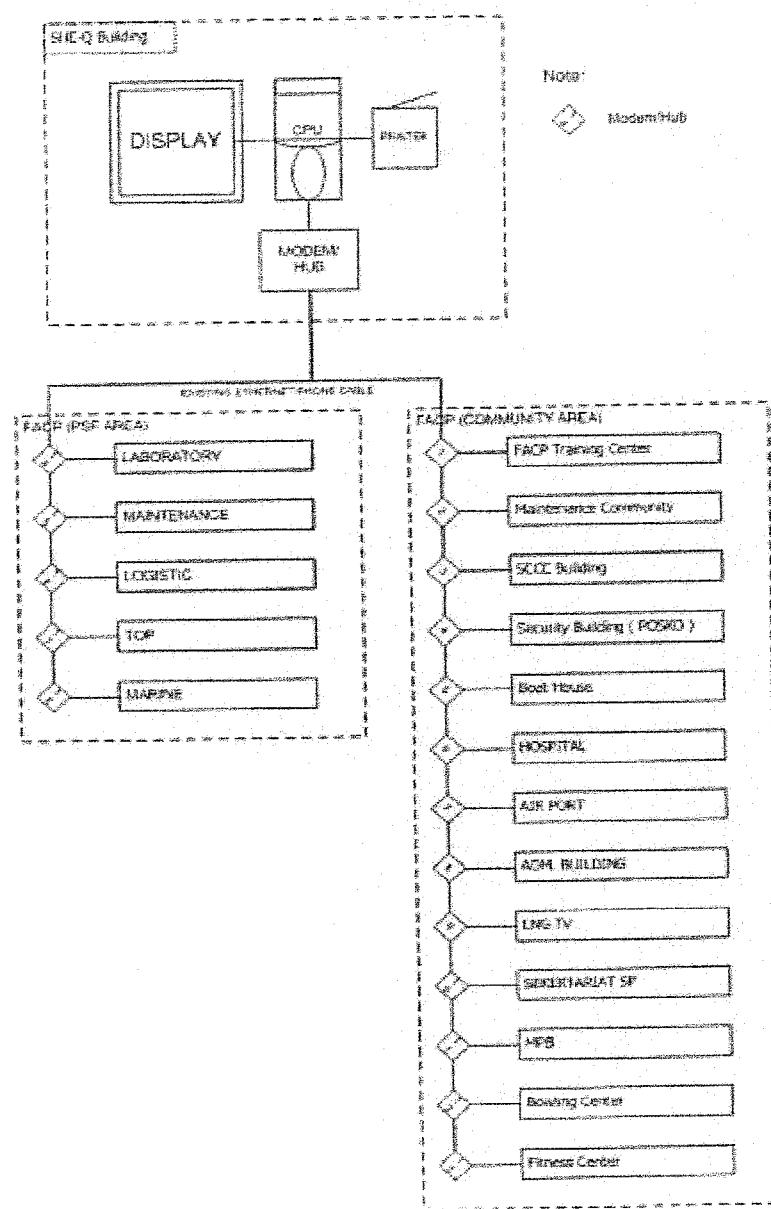
The work scopes of this project are as follows:

- Detail engineering design.
- Procurement of new FAMS and networking support equipments
- Install new FAMS and networking support equipments to integrate all PSF and community buildings.

This project should be completed in 2014

**Project Estimate and Schedule**

Budget Category	Current Year	Carry Forward	Total Project Cost
Project Cost Estimation	20	130	150
Project Execution Plan	Start	Finish	Duration
Detail Engineering Design	Mar-2013	Jul-2013	5 Months
Procurement	Aug-2013	Apr-2014	9 Months
Construction	May-2014	Aug-2014	4 Months



#### 4. Replacement Dry Chemical in 24D-6 - \$150

It is proposed to replace dry chemical system at 24D-6 since the existing Herion system was not working properly due to lack of N2 supply from small N2 cylinder and frequently experienced leakage from N2 cylinder manifold. The small N2 cylinder is used for triggering mechanical devices to open the valve from larger N2 cylinder that drive the dry chemical powder to exit from the dry chemical holder to spray system when the emergency/fire situation occurred. Additionally, the existing dry chemical system has already been obsolete as installed in 1993.

The work scopes of this project are as follows:

- Detail engineering design.
- Procurement of new dry chemical system
- Demolish the existing system and install new system at 24D-6.

This project should be completed on 2014

### Project Estimate and Schedule

Budget Category	Current Year	Carry Forward	Total Project Cost
Project Cost Estimation	20	130	150
Project Execution Plan	Start	Finish	Duration
Detail Engineering Design	Mar-2013	Jul-2013	5 Months
Procurement	Aug-2013	Apr-2014	9 Months
Construction	May-2014	Aug-2014	4 Months

**5. MP-LP Steam Letdown Station at Train G & H Utilities - \$140**

Based on energy assessment by Performance Improvement Limited (PI) in 2009, continuous LP steam venting of 7.5 ton/hr in average occurred in Module I. The possible cause is hydraulic problem due to geographical layout of Train G and H in the steam distribution system which leads to significant shortfall of LP steam to Train G and H inlet. This also contributed by lower LP steam production in the trains. This condition has contributed inefficiency in steam production related with fuel consumption and water treatment cost.

Process & SHE Engineering is requested to study the improvement of steam distribution system for minimizing the LP steam venting. The study resulted in that the most feasible option compared to other options is to relocate the existing let down station to the new location. By doing this option, it is expected to eliminate 3 ton/hr LP steam or equal with US\$ 89,813 / year recovery and result in payback period of 1.7 year. Noted that this project can only be executed during Train H shutdown.

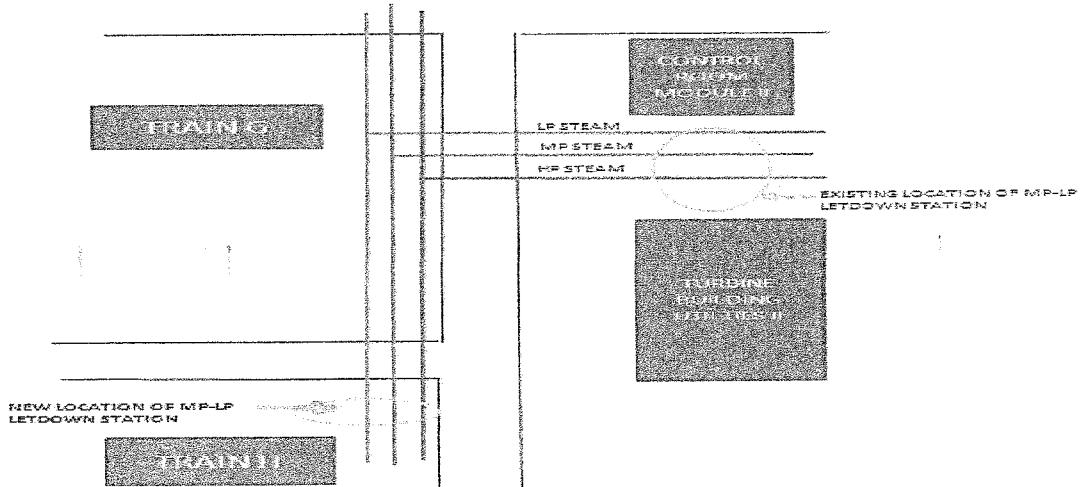
The project covers following scope of work:

1. Procurement, including purchase 20" gate valve (2 ea), 12" gate valve (2 ea), 20" and 12 " carbon steel pipes and fittings, and also structural steel and grating for pipe support and walkway.
2. Construction, including:
  - a. Mechanical
    - Remove the existing MP-LP letdown station from old location to new location and remain 20" and 12" double block valves on the old location.
    - Install new 20" and 12" double block valves at new location and followed by installing the MP-LP letdown station that has been removed from old location.
    - Fabricate and install walkway.
  - b. Instrument
    - Install junction box at old location of MP-LP letdown station.
    - Do wiring from instrument equipments, which also been removed to the new location, to the junction box.

Noted that this project can only be executed during Train H shutdown.

### Project Estimate and Schedule

Budget Category	Current Year	Carry Forward	Total Project Cost
Project Cost Estimation	15	125	140
Project Execution Plan	Start	Finish	Duration
Detail Engineering Design	Jan-2013	Mar-2013	3 Months
Procurement	Apr-2013	Sep-2013	6 Months
Construction / Installation	Aug-2013	Sep-2014	Train H S/D



#### 6. Cable 48FDR-18/28 Additional - \$370

Cable used for feeder 30FDR-18 & 30FDR-28 to supply power for housing, offices and recreation facility is 1x3C+Ex120sqmm which has corrected *current carrying capacity* (CCC) 234.5A. In normal operation when each feeders supply their own load, the current carrying capacity of cable is capable to carry the load. But, in case of one feeder trip due to electrical failure or normally shutdown for Preventive Maintenance (PM) program and tie breaker at switchgear 48-PSW-18/28 is close, all loads will supplied from one feeder only. The total load is 270A. This load could not be handle by the existing cable. Because of this consideration the cable never been PM checked.

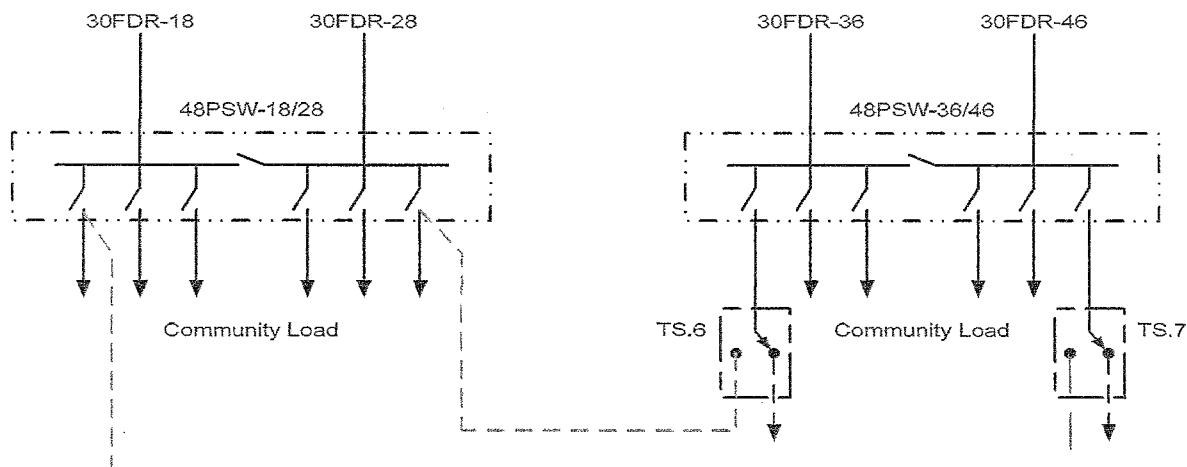
As the solution, some load of feeder 48FDR-18/28 should be moved to other feeders (48FDR-31/41).

The work scope of project is as follows:

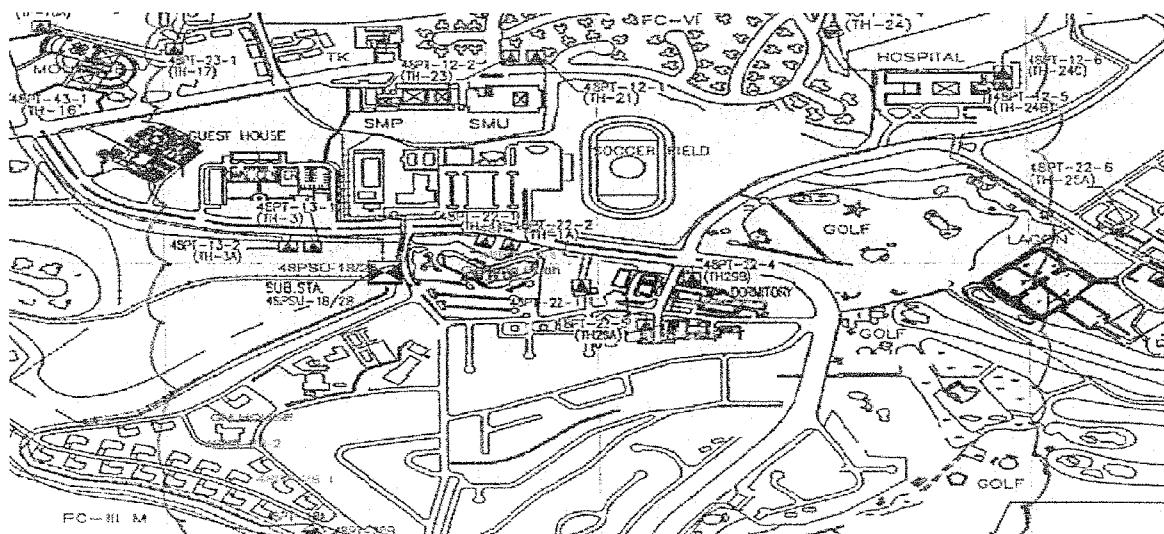
- Switch Transformers 48-PT-18-1/2 and 48-PT-28-1/2 to feeder 48-FDR-31/41 (supplied from Switchgear 48-PSW-36/46) directly through TS.4/5/6/7 without any modification of existing installation.
- Switch Transformers 48-PT-22-1/2/3/4 to feeder 48-FDR-31/41 (supplied from Switchgear 48-PSW-36/46). It will need to install additional cable for modifying the existing installation configuration.

### Project Estimate and Schedule

Budget Category	Current Year	Carry Forward	Project Cost Estimation
Project Cost Estimation	40	330	370
Project Execution Plan	Start	Finish	Duration
Detail Engineering Design	Jan-2013	Feb-2013	2 Months
Procurement	Mar-2013	Dec-2013	10 Months
Construction	Jan-2014	Aug-2014	8 Months
Commissioning	Sep-2014	Sep-2014	3 Days



— — — — New Cable Need to Install for transferring some load from Substation 48PSW-18/28 to 48PSW-36/46

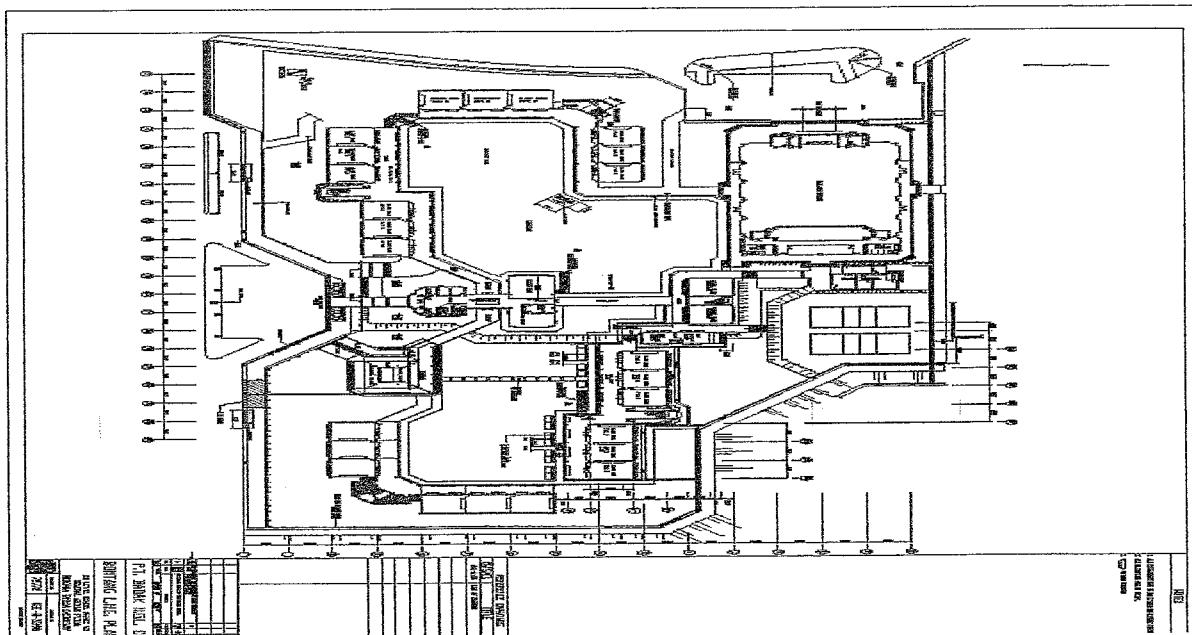


#### **7. Triple Agent Fire Truck with Mercedes Benz Chassis 6x4 wheel drive - \$950**

It is proposed to purchase 1 unit Triple Agent Fire Truck with Mercedes Benz Chassis 6x4 wheel drive to replace the old one Fire Truck (B-948 with 20 years old). This Fire Truck is used to meet the minimum requirement of Fire Truck for plant Emergency Respond.

### 8. Emergency Stair at SD Vidatra - \$43

Elementary School at Vidatra Building constructed in 6 phases of implementation and completion in 1992. The building consists of 2 floors with a total 29 classrooms and an average of 24 students per class with a ladder to access up and down for students and teachers. There is one ladder for class 1 & 3, one ladder for class 2 & 4 and one ladder for class 5 & 6. The problem arises during recess or after school hours in which the tendency of children to run and jostle through the stairs access only one giving rise to unsafe conditions for the elementary school students.



The purpose of the project is to construct the emergency stairs at 3 location of Elementary School Vidatra Building.

The project covers the following scope of work:

- Construct emergency stair at Teacher Room (one location)
- Construct emergency stairs at Classrooms (two locations)

Considering the implementation of ISRS Level 8, Management Inspection in 2008 and Life Safety Code Handbook, emergency ladder is required for all multi storey buildings, inhabited by many people's such as schools, colleges / universities, apartments, flats, hotel, office buildings and hospital.

**Project Estimate and Schedule**

Budget Category	Current Year	Carry Forward	Total Project Cost
Project Cost Estimation	25	18	43
Project Execution Plan	Start	Finish	Duration
Detail Engineering Design	Jan-2013	Apr-2013	4 Months
Contract Development	May-2013	Jul-2013	3 Months
P & C Execution	Aug-2013	Jan-2014	6 Months

## **9. Replacement UPS 37-PU- 1 at Radio Room - \$170**

The existing UPS Merlin Gerin EPS-2000 (tag number 37-PU-1) has been obsolete since 1997. The spare parts and services will be not supported anymore starts in 2013. These are 10 KVA UPS, to supply critical load at Radio Room such as Trinking repeater, PABX, Trunk central controller etc. Considering their function, these UPS shall be reliable and all mandatory spare parts shall be supported by manufacturer.

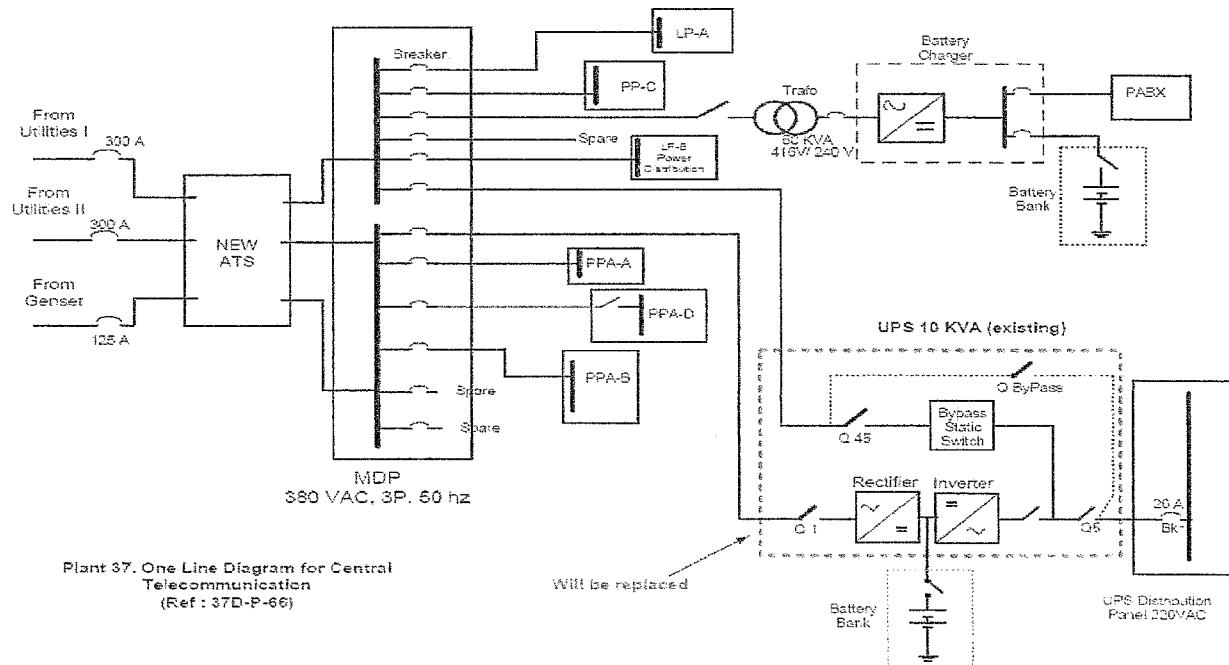
The purpose of the project is to replace the obsolescence UPS 37-PU-1 at Radio Room.

The project covers the following scope of work:

- Remove the existing UPS Merlin Gerin EPS-2000 (37-PU-1)
- Procure and install new UPS unit
- Perform test and commissioning.

### **Project Estimate and Schedule**

Budget Category	Current Year	Carry Forward	Total Project Cost
Project Cost Estimation	20	150	170
Project Execution Plan	Start	Finish	Duration
Detail Engineering Design	Jan-2013	Mar-2013	3 Months
Procurement	Mar-2013	Nov-2013	9 Months
Construction	Jan-2013	Mar-2014	3 Months



## **10. Pre-Heater Additional in Regeneration Gas Circuit to Reduce High Pressure Steam Consumption - \$650**

This project is a follow up to Energy Assessment by PIEE. In plant 2, high pressure steam is utilized for heating up 31,000 – 40,000 kNm<sup>3</sup>/hr of regeneration gas from ± 20 °C to ± 270 °C in Drier Reactivation Heater (2E-7) as part of regeneration cycle of saturated moisture bed. A new heat exchanger which functions as a pre-heater is proposed to be added to pre-heat the regeneration gas entering Drier Reactivation Heater (2E-7) by utilizing hot regeneration gas exiting saturation Feed Drier (2C-2) during

## PROPOSED ORIGINAL BUDGET 2013

heating step of regeneration cycle. Technical and economical evaluation is required to assess whether this modification is feasible to be implemented.

Based on Process & SHE Engineering evaluation, these additional pre-heaters in regeneration gas circuit can reduce high pressure steam consumption by 4.5 – 6 tons/hr. This effort can also reduce the power consumption by 14.9 – 30 kW per train. The evaluation reveals that these modifications are will have PBP of 3,1 years. Modifications will be implemented in all trains.

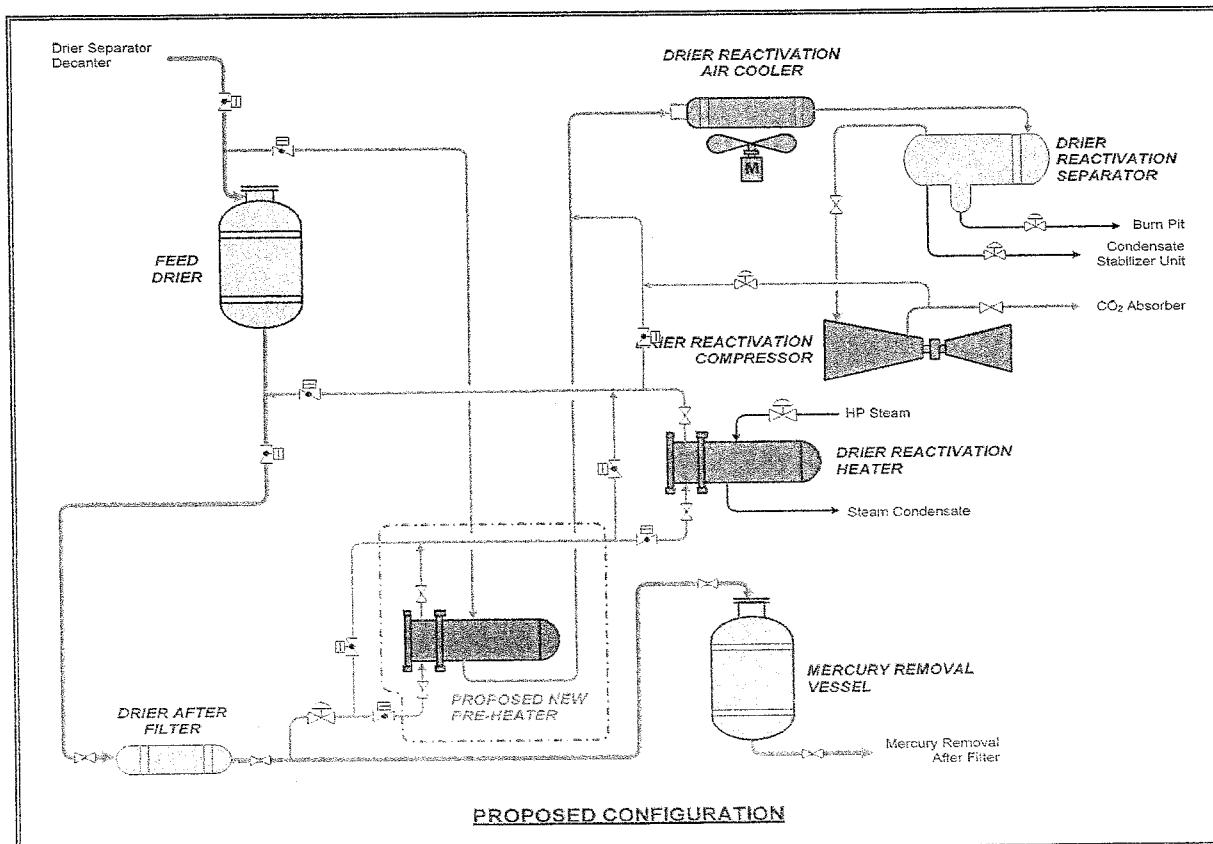
The work scopes of this project are as follows:

- Detail engineering design.
- Procurement of Heat Exchanger, Piping, Valves and Instrumentation.
- Install Heat Exchanger, Piping, Valves and Instrumentation.
- Performance Test.

### Project Estimate and Schedule

Budget Category	Current Year	Carry Forward	Total Project Cost
Project Cost Estimation	195	455	650
Project Execution Plan	Start	Finish	Duration
Detail Engineering Design	Jan-2013	Jun-2013	6 Months
Procurement	Jul-2013	Dec-2014	18 Months
Construction	Jan-2015	Dec-2015	12 Months

This project is Tier-2 and will be completed in 2014.



**PROPOSED ORIGINAL BUDGET 2013**

**PROPOSED ORIGINAL BUDGET 2013**  
**WORKING CAPITAL CHANGES**  
(In Thousands of US Dollars)

Opening Balance 01/01/2013	Closing Balance 31/12/2013		Qtr 1	Qtr 2	Qtr 3	Qtr 4	Original Budget 2013	Revised Budget 2012	Variance Over / (Under)
<b>INVENTORY CHANGES</b>									
Main Warehouse:									
		Receipt	3,670	4,205	4,517	4,448	16,840	15,241	1,599
		Issues	(3,380)	(3,893)	(4,307)	(4,152)	(15,732)	(14,895)	(837)
		Adjustment	10	10	(10)	(10)	0	0	(0)
45,989	47,097	Subtotal Main Warehouse	300	322	200	286	1,108	347	761
Others Inventory									
66	37	Souvenir Stock	(4)	(10)	(5)	(10)	(29)	14	(43)
373	293	Other Inventory	(20)	(20)	(20)	(20)	(80)	(92)	12
439	330	Subtotal Others Inventory	(24)	(30)	(25)	(30)	(109)	(78)	(31)
46,428	47,427	Total Inventory	276	292	175	256	988	269	730
<b>OTHER WORKING CAPITAL CHANGES</b>									
Receivables									
3,250	3,466	Commercial Receivables	(878)	351	353	390	216	599	(383)
18,885	20,735	Employee Receivables/Loan	532	346	493	479	1,850	2,685	(835)
22,135	24,201	Subtotal Receivable	(346)	697	846	869	2,066	3,284	(1,218)
Prepaid & Deferred Charges									
890	826	PPN Creditable & PPh 22/23	104	(205)	123	(86)	(64)	(286)	222
(325)	43	Insurance	2,270	(634)	(634)	(634)	368	78	290
69	113	Rent	200	(52)	(52)	(52)	44	12	32
3,826	4,240	Others Prepaid	475	(206)	(380)	525	414	318	96
4,460	5,222	Subtotal Prepaid	3,049	(1,097)	(943)	(247)	762	122	640
Accrued Liabilities									
17,540	12,712	Account Payables	1,335	(1,890)	(2,219)	(2,054)	(4,828)	(4,205)	(623)
(5,107)	(5,340)	Tax Payable	(770)	358	467	(288)	(233)	(328)	95
(5,177)	(4,998)	Others Liabilities	(620)	(206)	660	345	179	270	(91)
7,256	2,374	Subtotal Accrued Liabilities	(55)	(1,738)	(1,092)	(1,997)	(4,882)	(4,263)	(619)
(179)	211	Miscellaneous	40	145	65	140	390	306	84
(179)	211	Subtotal Miscellaneous	40	145	65	140	390	306	84
33,672	32,008	Total Other Working Capital Changes	2,688	(1,993)	(1,124)	(1,235)	(1,664)	(551)	(1,113)
80,100	79,435	Total Other Working Capital	2,964	(1,701)	(949)	(979)	(665)	(282)	(383)

**PROPOSED ORIGINAL BUDGET 2013  
EXPLANATION OF WORKING CAPITAL CHANGES  
(In Thousands of US Dollars)**

**Working Capital Changes** – decrease by \$383

**Inventory Change** – increase by \$730

1. Main Warehouse Receipts of \$16,840 will increase by \$1,599 than was estimated in the revised budget 2012 mainly due to will be some additional new stock item of instrument and rotating parts in Tr. G & H.

While Main Warehouse Issues of \$15,732 will increase by \$837 mainly due to lower monthly receipts and higher issues for normal stock items than was estimated in the revised budget 2012.

**Other Working Capital Changes** - decrease by \$1,113

1. Commercial Receivable changes will be debit of \$216, which is \$383 lower than Revised Budget mainly because of higher anticipated receipts in 2012 from PTB invoices.
2. Employee Receivable changes will be debit of \$1,850, which is \$835 lower than Revised Budget mainly because of given employee loan higher than receipt of installment loan for each month.
3. Prepaid PPN Creditable & PPh 22/23 changes will be credit of \$64, which is \$222 higher than Revised Budget mainly due to compensate to corporate income tax for 2013 and PPN Output.
4. Prepaid insurance changes will be debit of \$634, which is \$290 higher than Revised Budget mainly due to expected increase of premium rate for fire insurance.
5. Accounts Payable changes will be a credit of \$4,828, which is a decrease of \$623 compared with the Revised Budget 2012 mainly because of higher expected payment of outstanding invoices in the accounts payable system at the end of 2013.

**PROPOSED ORIGINAL BUDGET 2013**

**PROPOSED ORIGINAL BUDGET 2013**

**TIER III CATEGORY**

(In Thousand US Dollars)

Rate 9300 Per USD

No.	AFE NO:	Title	Dept	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Original Budget 2013	Prior Year Cost	Carry Forward Cost	Total Project Forecast
<b>Carry Forward</b>											
1	43010204	Module I & II Cooling Water Area Reliability Improvement	OPT	680	850	570	203	2,303	1,882	-	4,185
2	43011201	Train F DCS Centum XL Replacement	OPT	325	550	100	175	1,150	250	-	1,400
3	43011202	Flare Gas Recovery (Pashe I)	OPT	157	276	472	545	1,450	500	550	2,500
4	43012201	ABB STAL Gas Turbine Control System (PG-15) Retrofit	OPT	15	215	640	130	1,000	20	700	1,720
<b>Sub Total Carry Forward</b>				<b>1,177</b>	<b>1,891</b>	<b>1,782</b>	<b>1,053</b>	<b>5,903</b>	<b>2,652</b>	<b>1,250</b>	<b>9,805</b>
<b>Current Year</b>											
1	43013XXX	Community Water Losses - PC Area Improvement Phase II	OPT	3	6	44	380	433	-	580	1,013
2	43013XXX	Potable Water Quality Improvement at Storage	Tech	-	-	10	10	20	-	1,080	1,100
3	43013XXX	Implementation of RO - EDI	Tech	-	-	50	50	100	-	1,800	1,900
<b>Sub Total</b>				<b>-</b>	<b>-</b>	<b>60</b>	<b>60</b>	<b>120</b>	<b>-</b>	<b>2,880</b>	<b>3,000</b>
<b>Sub Total Current Year</b>				<b>3</b>	<b>6</b>	<b>104</b>	<b>440</b>	<b>553</b>	<b>-</b>	<b>3,460</b>	<b>4,013</b>
<b>Total Tier III</b>				<b>1,180</b>	<b>1,897</b>	<b>1,886</b>	<b>1,493</b>	<b>6,456</b>	<b>2,652</b>	<b>4,710</b>	<b>13,818</b>

**PROPOSED ORIGINAL BUDGET 2013**  
**DESCRIPTION OF TIER III – CARRY FORWARD**  
(In Thousands of US Dollars)

**1. Module I & II Cooling Water Area Reliability Improvement - \$2,303**

The detailed engineering design was completed for Electrical and Mechanical. Electrical Package (CA-11003) was awarded in April 2011 with commencing on May 2011 to May 2012. Mechanical / NRV Improvement package will be executed by PO & WO. Instrument package will be also executed by PO / WO. The overall completion is targeted by 4<sup>th</sup> quarter 2013. The total funding for this project will remain the same as per the approved AFE budget, i.e. \$4,185.

**2. Train F DCS Centum XL Replacement - \$1,150**

This project total value has been revised from \$4,435 to \$1,400 based on PT Badak's proposal in BOC meeting on 23 October 2012. The revised amount is based on Program of swapping DCS Train A with Train F due to Train A Long Term Idle (LTI).

**3. Flare Gas Recovery - \$1,450**

The detailed engineering design is expected to be completed in December 2011. The EPC contract is scheduled to awarded in September 2012. The EPC is expected to start in October 2012. The overall completion is targeted by 4<sup>th</sup> quarter 2014. The total funding for this project will remain the same as per the approved AFE budget, i.e. \$2,500.

**4. ABB STAL Gas Turbine Control System (PG-15) Retrofit - \$1,000**

The detailed engineering design is expected to be completed in September 2012. The EPC contract is scheduled to awarded in November 2012. The EPC is expected to start in December 2012. The overall completion is targeted by 4<sup>th</sup> quarter 2014. The total funding for this project will remain the same as per the approved AFE budget, i.e. \$1,720.

**PROPOSED ORIGINAL BUDGET 2013**  
**DESCRIPTION OF TIER III – NEW PROJECTS**  
(In Thousands of US Dollars)

**1. Community Water Losses – PC Area Improvement - \$1,013**

Water losses in PT Badak NGL's community areas (SHEQ Building, PC III B, PC III, PC IV & PC VI) are identified to reach more than 50% of supplied water. It has been verified by 2 water losses surveys, which are the survey conducted by Rekayasa Engineering in 2005 and survey conducted by PT Badak NGL team in 2007.

In order to sharpen the year 2007 survey, PT Badak NGL's team conducted similar survey in 2010. The survey resulted in total water losses in PC and HOP areas are around  $239.5 \text{ m}^3/\text{hr}$  and  $77 \text{ m}^3/\text{hr}$ , respectively. The suspected damaged lines at some locations are in line with the result of 2005 survey by Rekayasa Engineering and some more locations that were not detected by 2005 survey. Water piping in PC areas will be replaced after replacing water piping in HOP areas that will finish by December 2012. By eliminating  $239.5 \text{ m}^3/\text{hr}$  of water losses this improvement equal with US\$ 1,287,000/year saving and result in payback period of 11 months based on water treatment cost of US\$  $0.66/\text{m}^3$ .

This project covers following scope of work:

1. Procurement, including purchasing HDPE pipes and flow meters.
2. Install the new pipes & flow meter to replace the existing ones.
3. Testing & Commissioning.

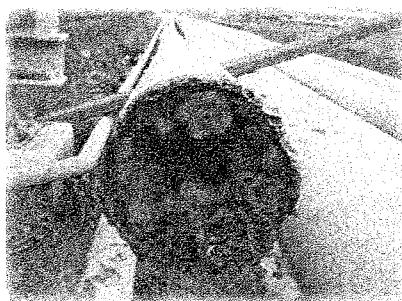
**Project Estimate and Schedule**

Budget Category	Current Year	Carry Forward	Total Project Cost
Project Cost Estimation	440	580	1,020
Project Execution Plan	Start	Finish	Duration
Leakage Detection	Feb-2013	Mar-2013	2 Months
Detail Engineering Design	Apr-2013	Aug-2013	5 Months
Procurement	Sep-2013	Feb-2014	6 Months
Construction	Mar-2014	Sep-2014	7 Months

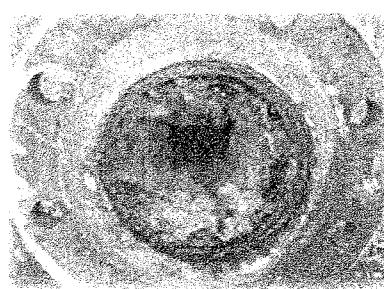
**2. Potable Water Quality Improvement at Storage Loading Area - \$1,100**

Potable water line header size 4" and 6", which service for storage loading area, run for about 5 Km started from Plant 38 to area plant 17, Plant 20, Plant 24, Plant 39 and Loading Dock 1/2/3.

Currently, the potable water pipeline had bad internal scaling and it has made the inside diameter of pipe reduce more than 50%. It might be caused by corrosion product. The pipe sample has been cut out and found bad scaling inside the pipe (see picture below). Therefore, it is necessary to replace potable water line at the mention above areas.

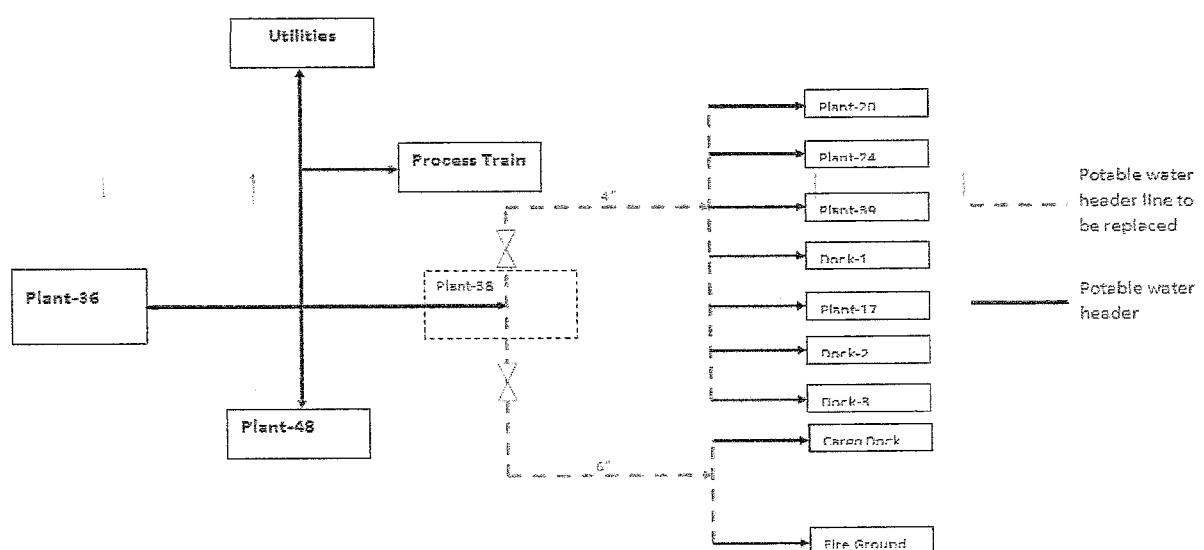


Internal pipe condition



Internal flange condition

Additionally, potable water supply to Plant 24, Plant 39, LPG Control Room and Dock 1/2/3 control room were not healthy anymore to be used for sanitary, washing, cleaning and drinking water since the iron content has reached the standard limit ( $>0.3 \text{ mg/l}$ ) and the colour has become yellow.



Simplified Diagram Potable Water Line

#### Scope of Work:

- Replace piping header size 4" (length 5 Km) and size 6" (length 1 Km).
- Purchase water purifier 7 (seven) ea.
- Civil Work.
- Painting Work.
- Inspection and Testing.

#### Project Estimate and Schedule

Budget Category	Current Year	Carry Forward	Total Project Cost
Project Cost Estimation	20	1,080	1,100
Project Execution Plan	Start	Finish	Duration
Detail Engineering Design	Jan-2013	Mar-2013	3 Months
Procurement	Apr-2013	Jan-2014	10 Months
Construction / Installation	Dec-2013	Dec-2014	12 Months

### **3. Implementation of RO - EDI - \$1,900**

Reverse Osmosis – Electrodeionization (RO-EDI) is new technology of water treatment combining membrane separation and ion exchange process that could replace the existing Ion Exchanger units. This technology could eliminate current utilization of hazardous chemicals of sulfuric acid and caustic utilization that has raised some safety and environment issues.

Based on observation result of the RO-EDI pilot project in 2010-2011, the water product could meet PT Badak specification and there is no significant maintenance. RO-EDI is also potential to reduce water cost from current USD 0.66/m<sup>3</sup> to USD 0.408/m<sup>3</sup>. The proposed optimum RO-EDI capacity is 135 m<sup>3</sup>/hr.

The work scopes of this project are as follows:

- Pre-feasibility study covering data collection from vendors and benchmarking and continued with feasibility study
- Detail engineering design
- Procurement of RO-EDI unit
- Installation
- Commissioning

#### **Project Estimate and Schedule**

Budget Category	Current Year	Carry Forward	Total Project Cost
Project Cost Estimation	100	1,800	1,900
Project Execution Plan	Start	Finish	Duration
Study	Jan-2013	Jun-2013	6 Months
Detail Engineering Design	Jun-2013	Dec-2013	6 Months
Procurement	Jan-2014	Nov-2014	11 Months
Construction	Dec-2014	Apr-2015	5 Months

**PROPOSED ORIGINAL BUDGET 2013**  
**OWNERS' COST PROJECT**  
(In Thousands of US Dollars)

<u>AFE NO:</u>	<u>Title</u>	<u>Dept</u>	Qtr	Qtr	Qtr	Qtr	Original	Prior	Carry	Total
			<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>Budget</u> <u>2013</u>	<u>Year</u> <u>Cost</u>	<u>Forward</u> <u>Cost</u>	<u>Project</u> <u>Forecast</u>
<b><u>Current Year</u></b>										
1 46013101	FEED for Various Project - Contract	SPD	-	100	165	200	465	-	-	465
2 46013101	FEED for Various Project - Business	SPD	-	-	-	-	-	-	-	-
3 46013101	FEED for Various Project - Material	SPD	-	-	-	-	-	-	-	-
<b>Total Owners Cost</b>			-	100	165	200	465	-	-	465
			-----	-----	-----	-----	-----	-----	-----	-----

**PROPOSED REVISED BUDGET 2013**  
**DESCRIPTION OWNERS' COST PROJECTS**  
(In Thousands of US Dollars)

**NEW PROJECT DESCRIPTION:****I. Train F Remaining Useful Life (RUL) Study- \$465**

Train F design life is 20 years and will be reached in 2013. Previously, RUL was performed by BP in 2009 for all Trains is only a Level 1 and deemed not comprehensive enough. Therefore, it is required comprehensive study to determine the remaining useful life of the equipment and structures in Train F and related Utilities as well as to determine the scope for Life Extension Program if any of the equipment has remaining useful life less than 10 years. A total of 51 studies need to be conducted and four of them need to be carried out by third party. The above budget is required to cover study conducted by that third party.

The studies which are conducted by third parties as follows:

**1. Fire Water Piping corrosion & flushing (USD 25,000)**

Justification:

- To assess current condition of fire water piping network of Train F
- To analyse the causes of corrosion occurred in the pipes since the pipe already in service for almost 20 years

**2. FRP Analysis Study Train F (USD 80,000)**

Justification:

To determine the Remaining Useful Life of the pipe and fitness for another 20 years of service (by taking samples)

**3. Condition Assessment and Life Extension study of piping and equipment (USD 300,000)**

Justification:

- To evaluate the equipment and piping based on a review of the original design, current operation condition and inspection results
- To identify the items that have progressive damage mechanisms that can limit their life to less than 20 years of service

**4. Soil stability/settlement in pad (USD 60,000)**

Justification:

To evaluate soil condition under slab concrete if there is a decreasing level caused by water leak

**The time frame:**

No	Activities	Schedule	Status
1	Scope of work (SOW) development	Apr – Aug 2012	IP
2	Contract Order Preparation	Sep – Oct 2012	
3	Bidding and/or BSO process	Nov – Dec 2012	
4	Contracts award	December 2012	
5	RUL Assessment	Jan – Aug 2013	
6	Final Report	September 2013	

**ONE TRAIN LONG TERM IDLE (LTI)**

Board of Commissioner unanimously agree to put 1 (one) Train in LTI and 2 (two) Trains in normal Idle for 2013 and before the end of 2012 Producers will consider whether to change 1 (one) Train of normal Idle to be extended STI.

The following is cost impact on One LTI with the period of 2013 – 2017.

	2013	2014	2015	2016	2017
LTI	7,184	121	131	141	152

# YEAR BUSINESS PLAN

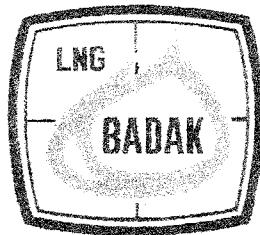
2010 - 2015

5



PT BADAK NGL  
Bontang, East Kalimantan  
Indonesia

# PT BADAK NGL



## 5 YEARS BUSINESS PLAN 2013 – 2017

### APPROVAL SHEET

PREPARED BY :

Sr. MANAGER, CORPORATE  
STRATEGIC PLANNING &  
BUSINESS DEVELOPMENT

  
**AGUS SIGIT PRAMONO**

APPROVED BY :

DIRECTOR & COO,

**RACHMAD HARDADI**

PRESIDENT DIRECTOR  
& CEO,

  
**NANANG UNTUNG**

Dated :

  
**AGH/MH / KSM**

Dated :

Dated :

REV. NO.	DATE	DESCRIPTION
1	22 Nov. 2012	Re-issue for Approval (Feed Gas Forecast Changes)
0	1 Oct. 2012	Issue for Approval

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## **Company Profile**

## **Five (5) Years Business Plan 2013 – 2017**

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## **Attachment**

- Attachment – 1 Detail Budgets
- Attachment – 2 Feed Gas Forecast
- Attachment – 3 Processing Capacity and Train Operating Scheme
- Attachment – 4 Detail Shutdown Schedules

## List of Abbreviations

<b>5YBP</b>	: Five (5) Years Business Plan
<b>ABB STAL</b>	: Asea Brown Boveri – Svenska Turbinfabriks AB Ljungström
<b>ADP</b>	: Annual Delivery Program
<b>AS</b>	: Annual Survey (for Seaworthiness Certificate Renewal)
<b>ASL</b>	: Authorized Stock(age) List
<b>BLC</b>	: Badak Learning Center
<b>BOC</b>	: Board of Commissioners
<b>BP</b>	: Beyond Petroleum
<b>CEC</b>	: Critical Equipment Code
<b>CICO</b>	: Chevron Indonesia Company
<b>CSP&amp;BD</b>	: Corporate Strategic Planning and Business Development
<b>CUI</b>	: Corrosion under Insulation
<b>DCS</b>	: Distributed Control System
<b>DNV</b>	: Det Norske Veritas
<b>ECR</b>	: Equipment Criticality Rating
<b>EKGMC</b>	: East Kalimantan Gas Management Committee
<b>ESD/EDP</b>	: Emergency Shutdown / Depressuring
<b>FUPP</b>	: Formulir Usulan Penghapusan dan Penyisihan = Asset Elimination Proposal Form
<b>GOI</b>	: Government of Indonesia
<b>HHV</b>	: Higher Heating Value
<b>HR</b>	: Human Resources
<b>HRD</b>	: Human Resources Development
<b>IDD</b>	: Indonesian Deepwater Development
<b>IS</b>	: Intermediate Survey
<b>ISO</b>	: International Organization for Standardization
<b>ISRS</b>	: International Sustainability Rating System
<b>KOD</b>	: Knock-Out Drum
<b>KTI</b>	: Kawasan Timur Indonesia = Eastern Region of Indonesia
<b>LEP</b>	: Life Extension Program
<b>LNG</b>	: Liquefied Natural Gas
<b>LPG</b>	: Liquefied Petroleum Gas
<b>LSA</b>	: Long-Term Service Agreement

<b>LTI</b>	: Long-Term Idle
<b>MMBTU</b>	: Million Metric British Thermal Unit
<b>MMSCFD</b>	: Million Metric Standard Cubic Feet per Day
<b>MP-LP</b>	: Medium Pressure – Low Pressure
<b>MTPA</b>	: Million Tons per Annum
<b>NGL</b>	: Natural Gas Liquefaction
<b>O&amp;M</b>	: Operating & Maintenance
<b>OEM</b>	: Original Equipment Manufacturer
<b>OPEX</b>	: Operating Expense
<b>PC</b>	: Permanent Community
<b>PCS</b>	: Process Control System
<b>PDS</b>	: Potential Dead Stock
<b>PLA</b>	: Price List Agreement
<b>PM</b>	: Preventive Maintenance
<b>PMI</b>	: Preventive Maintenance Inspection
<b>PRF</b>	: Plant Reliability Factor
<b>PROPER</b>	: Program Penilaian Peringkat Kinerja Perusahaan = Company Performance Rating Assessment Program
<b>PSV</b>	: Pressure Safety Valve
<b>PTB</b>	: PT Badak
<b>PTE</b>	: Plant Thermal Efficiency
<b>RBM</b>	: Risk Based Maintenance
<b>RO – EDI</b>	: Reverse Osmosis – Electro De-Ionization
<b>RUL</b>	: Remaining Useful Life
<b>SHEQ</b>	: Safety, Health, Environmental and Quality
<b>SMK3</b>	: Sistem Manajemen Keselamatan dan Kesehatan Kerja = Occupational Health and Safety Management System
<b>SS</b>	: Special Survey (for Class Certificate Renewal)
<b>STI</b>	: Short-Term Idle
<b>TB</b>	: Tug Boat
<b>TEPI</b>	: Total E&P Indonesia
<b>UnSD</b>	: Unscheduled Shutdown
<b>USD</b>	: United States Dollar
<b>VAT</b>	: Value Added Tax
<b>VICO</b>	: Virginia Indonesia Company
<b>WO</b>	: Work Order
<b>WP</b>	: Work Program

# **Executive Summary**

5 Years Business Plan 2013 – 2017 has minor changes compared to 5 Years Business Plan 2012 – 2016 except for:

<b>5YBP 2012 - 2016</b>	<b>5YBP 2013 - 2017</b>
Rich gas still dominates in the period of 2012 – 2016	Methane content has gradually increase which much influences feed gas to become leaner
6 process trains is operating in the period of 2012 – 2016	4 – 5 process trains is operating in the period of 2013 – 2017
No process train put in short-term idle/long term idle/mothball	Train A will be put in long term idle starting from 2013 and the necessity to change the status of 1 of 2 normal idle trains to be extended short-term idle will be evaluated before the end of 2012
No detail maintenance program	Detail plant maintenance program including process train scheduled shutdown, loading dock overhaul, compressor turbine overhaul, etc.
The implementation of organization restructuring program based on 2009 OPUS study	Review and evaluate the implementation of organization restructuring program.

## **A. Core Business**

### **I. Feed Gas Forecast**

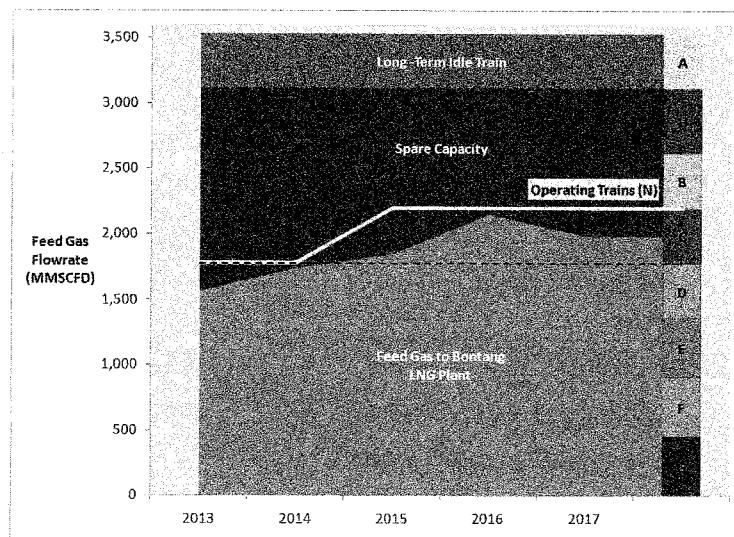
The forecast delivery of feed gas entering Bontang LNG Plant in the period of 2013 – 2017 will be in the range of 1,567 – 1,984 MMSCFD. The profile is quite different from the previous profile (5YBP 2012 – 2016) due to sharper decline of TEPI gas field production (Sisinubi, Tunu and Peciko).

In the period of 2013 – 2017, TEPI will account 58 – 75% of the overall East Kalimantan gas production while VICO will contribute 11 – 19%. Production from CICO existing gas fields will decrease gradually but with additional production from IDD (Indonesia Deepwater Development) starting from 2015, CICO contribution will increase up to 9% by the year of 2017.

### **II. Train Operating Scheme**

Only 4 trains (round-up of 3.49 – 3.91) is required to handle the incoming feed gas, meanwhile number of operating trains will be increased to 5 trains (round-up of 4.17 – 4.88) in the period of 2015 – 2017.

Total spare capacity derived from the excess capacity of operating trains and the unused capacity of normal idle trains reach 960 – 1,544 MMSCFD or equal to 0.45 – 0.99 times the amount of gas that goes to feed Bontang LNG Plant.



### **III. Plant Thermal Efficiency Forecast**

Plant Thermal Efficiency in the period of 2013 – 2017 is in the range of 87.83 – 88.66%. Increased fuel consumption to process a leaner natural gas is the most dominant factor of the lower PTE. In addition, the lower PTE is also affected by the lower ratio of the volumetric flow of incoming gas to be processed to the plant optimum capacity.

### **IV. Short-Term Idle (STI), Long-Term Idle (LTI) and Mothball Program**

It was decided to put 1 train in long-term idle and 2 trains in normal idle in 2013 and the necessity to change the status of 1 of 2 normal idle trains to be extended short-term idle will be evaluated before the end of 2012. Considering the issue of the Train A, Main Cryogenic Heat Exchanger (5E-1), overdue of Refrigerant Compressor Turbines (A4KT-1/2/3) overhaul in 2015, train shutdown for equipment inspection in 2015 therefore, Train A is chosen to be put in LTI first.

Regarding the utilization of Loading Dock-3, the previous proposal to mothball Loading Dock-3 might change since the LNG for Eastern Region of Indonesia Project (LNG KTI Project) requires dedicated dock to accommodate small vessels involved.

### **V. Production Forecast**

The number of committed LNG cargoes in 2016 will be significantly reduced for about 61% (3.8 MTPA or equal to 68 standard cargoes) compare to the number of committed LNG cargoes in 2013.

### **VI. SHEQ Strategic Plan**

For the next 2013 – 2017, PT Badak NGL plan to maintain and improve SHEQ achievement is as follows:

- 1) Continually review the SHEQ MS to cope with organization challenges.
- 2) Ensure that all element sponsors are committed to SHEQ MS implementation.
- 3) Maintain the impact on the environment.
- 4) Conduct regularly safety campaign.
- 5) Minimize road traffic accident.

- 6) Maintain current safety, quality and environment certification/awards:

## VII. Plant Reliability Forecast & Planning

In the year of 2011, PT Badak NGL has successfully improved the reliability performance with the Plat Reliability Factor (PRF) recorded at 99.13% which exceeds the PRF target of 98.5%. With these achievements, PT Badak NGL is optimistic to achieve goal as targeted in the Reliability Roadmap in which gradually PT Badak NGL plans to achieve by 2014 reliability higher than 99% with less than 6 trips per year and in overall less than 20 days of unscheduled shutdown.

## VIII. Plant Maintenance

In the period of 2013 – 2017 there will be 10 train scheduled shutdowns as follows:

Train	2013	2014	2015	2016	2017
Train A*	-	-	-	-	-
Train B	**)	-	-	-	-
Train C	1 – 15 Aug	-	-	15 Sep – 14 Oct	-
Train D	1 – 15 Aug	-	-	1 – 30 Sep	-
Train E	-	1 – 30 Aug	-	-	-
Train F***	1 – 30 Sep	7 Aug – 5 Sep	-	-	-
Train G	1 – 30 May	-	-	-	1 – 30 May
Train H	-	-	-	14 May – 12 Jun	-

\* Train A scheduled shutdown is dropped in line with the proposed train operating mode choosing this train to be long term idled.

\*\* B4KT-1/2/3 (Compressor Turbines) overhaul should be done first if Train B needs to be operated in the future.

\*\*\* Train F scheduled shutdown in 2013 will focus on insulation and DCS replacement, while in 2014, the program will focus on stationary equipments and PSVs.

## IX. Project Management

As continuous improvement PT Badak NGL executes projects to improve plant reliability and efficiency as well as non-plant related projects to support the LNG Plant.

Tier II: 2013- MP-LP Steam Letdown Station at Train G & H Utilities II

2013- Additional Pre-Heater in Regeneration Gas Circuit at Train F

Tier III: 2013- Implementation of RO - EDI

2014- Flare Gas Recovery Project (Phase II)

## X. Human Resources Forecast & Planning

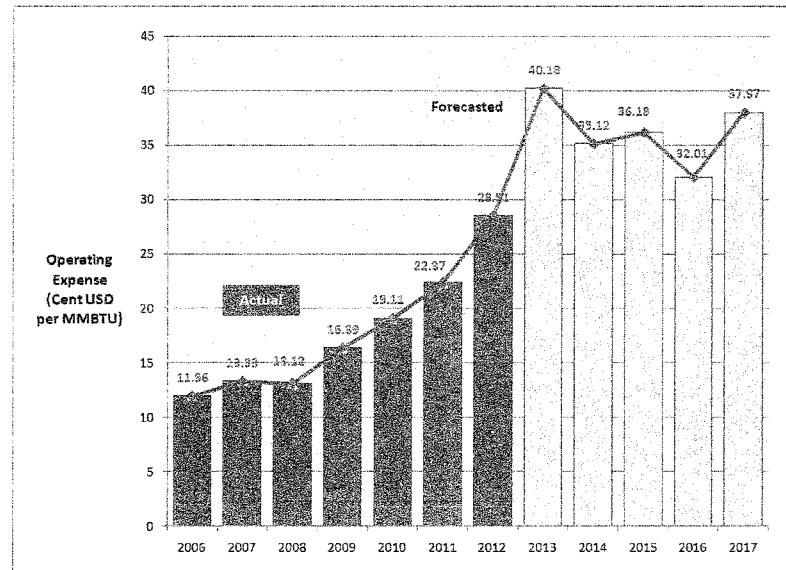
In order to fulfill requirement of six (6) trains in operation which requires total PTB employees of 983, the number of additional manpower to be recruited is as follows:

Parameter	YEAR					
	2012	2013	2014	2015	2016	2017
Available Manpower	1080	1038	960	942	903	910
Forecast Manpower	1116	1048	1025	986	983	983
Recruiting	36	10	65	44	80	73

PT Badak NGL commissioned PT Opus Management Indonesia (OPUS) to review and evaluate the implementation of organization restructuring which already implemented by PT Badak NGL based on previous organization restructuring study done in 2009. The evaluation will include restructuring, coordination, manpower planning and job functions to support PT Badak NGL operations.

## XI. Budgeting Forecast, Planning & Cost Efficiency

The expected operating expense in cents per MMBTU for the past and the future years are:



## B. New Business

The surge of the LNG industry caused an increasing demand for highly skilled LNG professionals. With 20 being developed and 13 planned LNG Plants, it is a large market to explore.

Ties with current gas producers and buyers are strong in attaining customer. To be more precise the majority of customer comes from LNG projects in the developing countries. It is on these bases the market segmentation for BLC and O&M be made.

Below are the target markets out of all the LNG Project under construction and planned:

- Donggi-Senoro LNG Plant (Indonesia)
- Brass LNG Plant (Nigeria)
- Delta Caribe LNG Plant (Venezuela)
- Liquid Niugini LNG Plant (Papua New Guinea)
- PNG LNG Plant (Papua New Guinea)
- Olokola LNG Plant (Nigeria)
- Pars LNG Plant (Iran)
- Persian LNG (Iran)
- Sikhda-GL1K Rebuild (Algeria)
- Arzew GL3Z (Algeria)

# PT BADAK NGL COMPANY PROFILE



## Company Profile

PT Badak NGL operates and maintains the natural gas liquefaction plant in Bontang, East Kalimantan which is owned by Government of Indonesian (GoI). Its share holders are PERTAMINA (55%), VICO (20%), JILCO (15%) and TOTAL (10%). Its product, Liquefied Natural Gas (LNG) is mostly sold to western buyers in Japan, Korea and Taiwan in long-term sales contracts extending from 10 to 20 years. PT Badak NGL states its:

### Vision

"To be a world-class energy company that leads innovation."

### Mission

"To produce clean energy with the best performance standard in order to yield maximum return for Stakeholders"

### Motto

"Strive to be the best"

### Values

1. Professionalism
2. Integrity
3. Dignity
4. Innovative
5. Safety, Healthy and Environment (SHE)

It is these Vision, Mission and Values that encompass the 5 Years Business Plan 2013 – 2017.

# 5 YEARS BUSINESS PLAN (5YBP)

## 2013 - 2017

### Core Business

PT Badak NGL Core Business is to operate and maintain the Bontang LNG Plant in a safe, reliable, efficient and environmentally friendly manner. The LNG, LPG and Condensate Production, Operating Scheme, Project Implementation and Budget are greatly affected by the gas delivered by the East Kalimantan Gas Producers and future additional gas producers.

### New Business

PT Badak NGL 35 years success in operating and maintaining the Bontang LNG Plant has open up an opportunity to share the experience and technical know-how to domestic and international audiences, specifically in the LNG industry and in the Gas Industry at large. PT Badak NGL gateways for knowledge transfer are:

- Badak Learning Center (BLC)
- Badak Operation and Maintenance (O&M) Services

## A. Core Business

### I. Feed Gas Forecast

The feed gas forecast profiles for the period of 2013 – 2017 are based on feed gas rate and composition forecast given at Producers Meeting in November 2012. All reference is compiled in Attachment – 2. Feed gas deliverability forecast and composition is graphical presented in Figure – 1 and Figure – 2 respectively below.

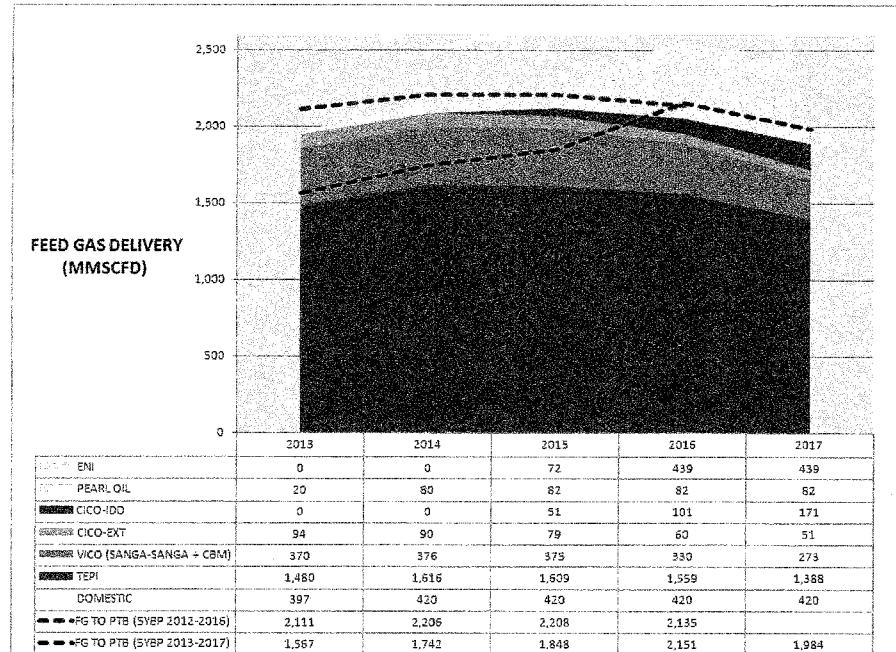


Figure – 1. Forecast Feed Gas Delivery

The forecast delivery of feed gas entering Bontang LNG Plant will be in the range of 1,567 – 1,984 MMSCFD. The profile is quite different from the previous profile (5YBP 2012 – 2016) in which the feed gas flowrate ranges between 2,100 – 2,200 MMSCFD. This difference is mainly contributed by sharper decline of TEPI gas field production (Sisinubi, Tunu and Peciko).

In the period of 2013 – 2017, TEPI will account 58 – 75% of the overall East Kalimantan gas production while VICO will contribute 11 – 19%. Production from CICO existing gas fields will decrease gradually but with additional production from IDD (Indonesia Deepwater Development) starting from 2015, CICO contribution will increase up to 9% by the year of 2017. Pearl Oil production from Sebuku gas field will contribute around 3% of the overall East Kalimantan Gas production starting from 2013 as it reaches a maximum of 82 MMSCFD. ENI production will begin in 2015 and will account for 18% of the overall East Kalimantan gas production in 2017.

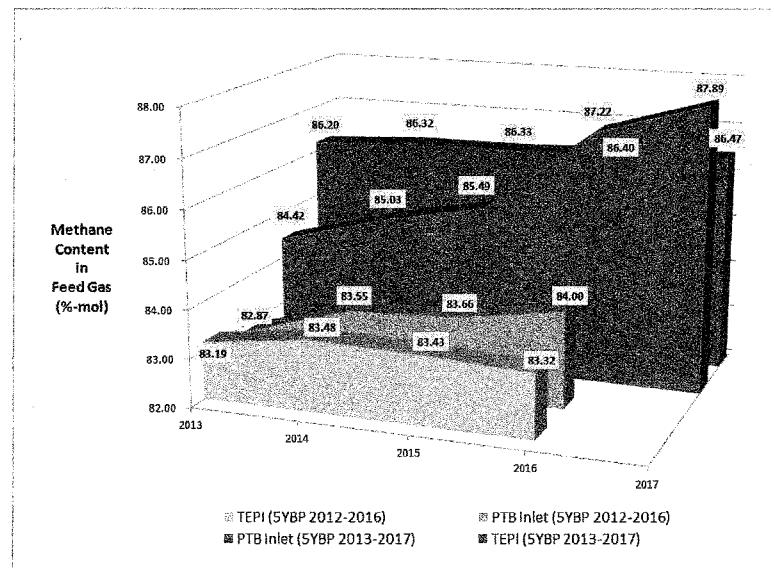


Figure – 2a. Methane Content in Feed Gas

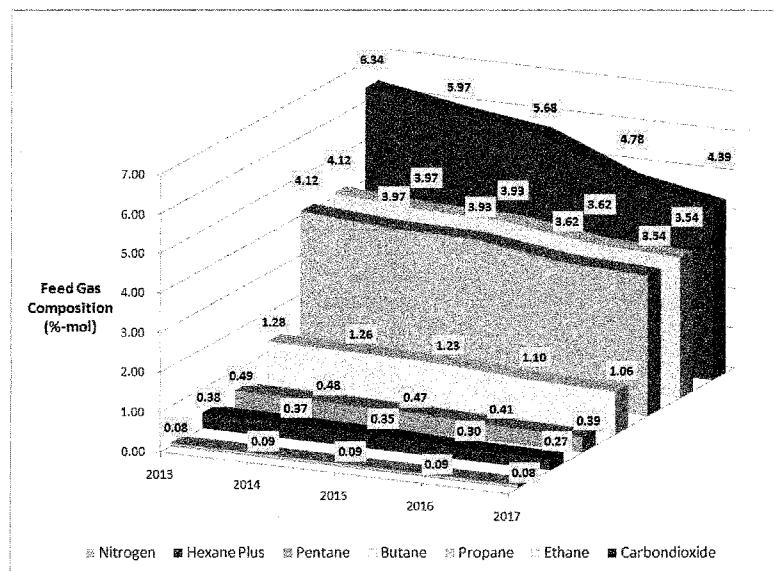
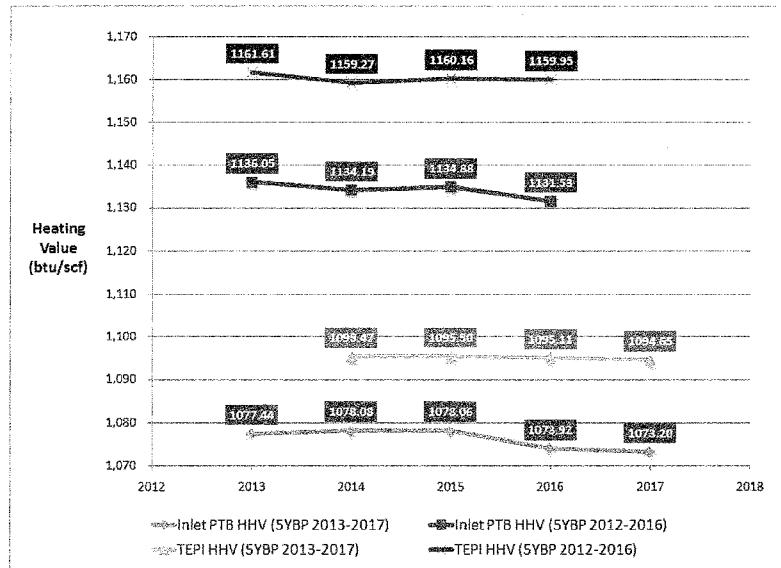


Figure – 2b. Feed Gas Composition Except Methane



**Figure – 2c. Feed Gas Heating Value**

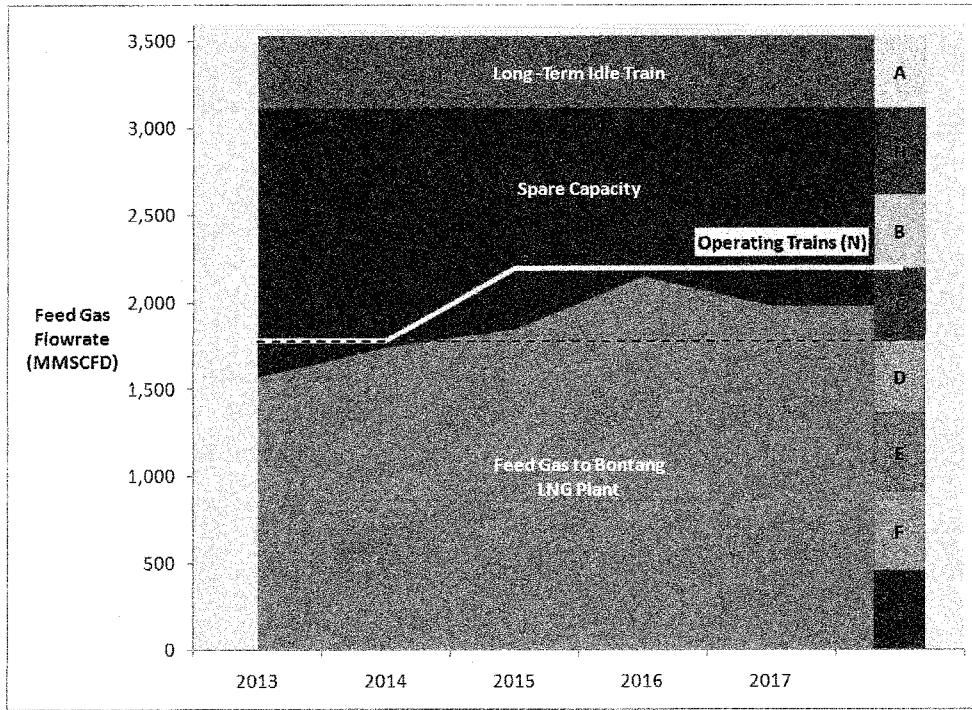
Figure – 2a shows the methane content in commingle feed gas compared to the largest contributor (TEPI). Recent update of feed gas forecast shows that methane content of TEPI's feed gas in the period of 2013 – 2017 is 3.6% higher than the previous forecast (5YBP 2012 – 2016), which much influences the inlet PTB feed gas characteristics to become leaner. Figure – 2b shows the carbondioxide content in the inlet PTB feed gas for year 2017 is 69% lower than year 2013, while the ethane plus content will decrease for about 17% in year 2017 compare to year 2013. The overall trend of the inlet PTB feed gas High Heating Value (HHV) compared to the largest contributor is shown in Figure – 2c. The inlet PTB feed gas HHV profile replicates TEPI's HHV profile. The overall inlet feed gas HHV is greatly influenced by the increase of methane content and the reduction of ethane plus content in the feed gas.

## **II. Train Operating Scheme [Champion: Production Vice President]**

The number of operating trains is estimated based on the feed gas deliverability and composition. The lower the rate of feed gas entering Bontang LNG Plant, the less the number of operating train. In addition, the leaner the composition of feed gas, the lower the LNG production rate of the Bontang LNG Plant. Please refer to Attachment – 3 for method of determining trains operating scheme.

In July 2012, Board of Commissioners (BOCs) decided to put 1 train in long-term idle and 2 trains in normal idle in 2013 and before the end of 2012, Gas Producers will consider the necessity to change the status of 1 of 2 normal idle trains to be extended short-term idle. Considering both technical and economic aspects, Train A is selected to be put in long-term idle starting from 2013.

Figure – 3 shows in 2013 – 2014, only 4 trains (round-up of 3.49 – 3.91) is required to handle the incoming feed gas, meanwhile number of operating trains will be increased to 5 trains (round-up of 4.17 – 4.88) in the period of 2015 – 2017. For this forecast, Train H as the biggest production capacity train is assumed to be put in idle condition to anticipate the worst scenario that could happened. Total spare capacity derived from the excess capacity of operating trains and the unused capacity of normal idle trains reach 960 – 1,544 MMSCFD or equal to 0.45 – 0.99 times the amount of gas that goes to feed Bontang LNG Plant.

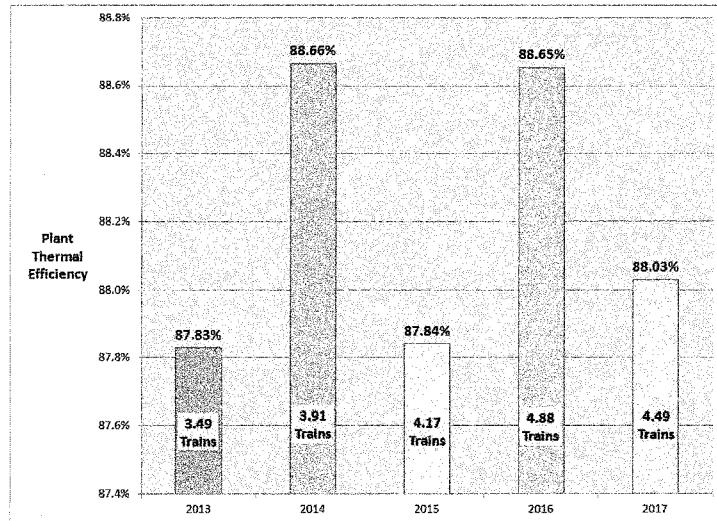


**Figure – 3. Number of Running Trains (PTB KOD Inlet Pressure of 43 kg/cm<sup>2</sup>g)**

In the period of 2013 – 2016, the production rate of propane and butane is still higher than the requirement of propane and/or butane to be reinjected into LNG to maintain the LNG qualities as well as the refrigeration power for liquefying the gas into LNG.

### **III. Plant Thermal Efficiency Forecast [Champion: Technical Senior Manager]**

Figure – 4 below shows the maximum Plant Thermal Efficiency (PTE) at optimum number of running trains (N). Increased fuel consumption to process a leaner natural gas is the most dominant factor of the lower PTE in the period of 2013 – 2017. In addition, the lower PTE is also affected by the lower ratio of the volumetric flow of incoming gas to be processed to the plant optimum capacity.

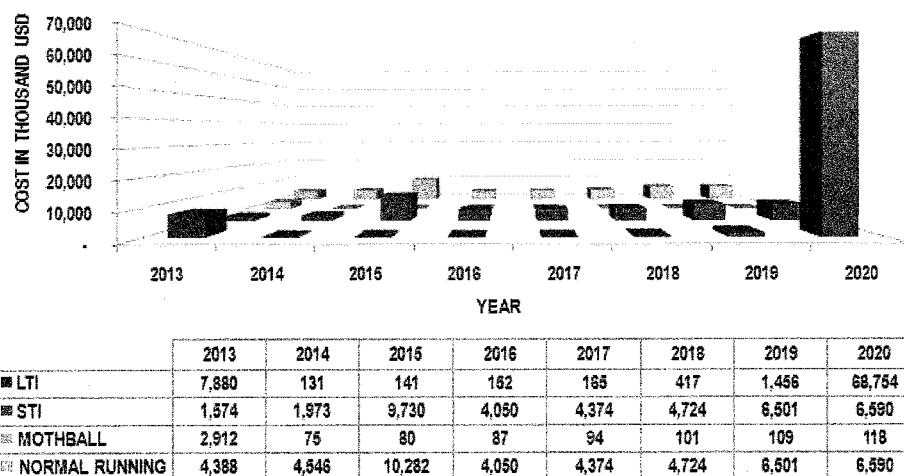


**Figure – 4. Maximum PTE at Optimum Number of Running Trains (N)**

#### **IV. Short-Term Idle (STI), Long-Term Idle (LTI) and Mothball Program** [Champion: Production Vice President]

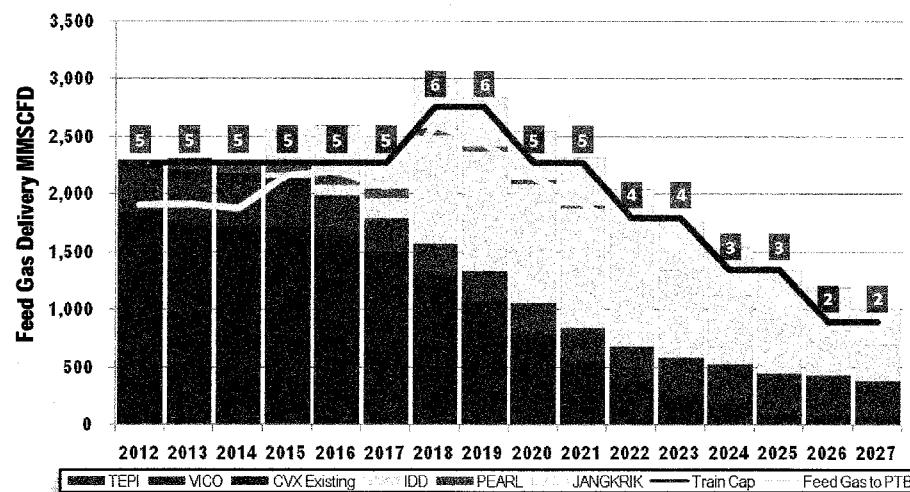
##### **Process Trains**

Following the Producers comment on the Cost Estimation for the LTI program, PT BADAQ NGL has prepared the cost comparison for Short Term idle, Long Term Idle and Mothball programs compared with the cost required to maintain one train in normal operation and took Train A as the reference. The main concerns driving Train A selection is based on the train assessment result in term of performance and equipment condition revealing that Train B is better than Train A. Figure – 5 shows the cost comparison among the Normal Operation (Normal Running and Normal Idle), STI, LTI and Mothball.



**Figure – 5. STI, LTI, Mothball, Normal Operation Cost Comparison in Thousand USD (8% Escalation Per Year)**

Considering the feed gas delivery forecast shown in Figure – 6, putting the train in STI and LTI will not economically justified since any reactivation cost consequence that must be spent in the end idle period while the feed gas will keep on declining after 2019.



**Figure – 6. Feed Gas Delivery Forecast**

Source: Feed Gas Delivery for Lean Gas Study, July 2012

Therefore PT BADAQ NGL proposed the following:

- Now – 2017 : Mothball: 1 Train; Normal Idle: 2 Trains; Normal Running: 5 Trains
- 2018 – 2019 : Mothball: 1 Train; Normal Idle: 1 Train; Normal Running: 6 Trains
- 2020 – 2021 : Mothball: 2 Trains; Normal Idle: 1 Train; Normal Running: 5 Trains
- 2022 – 2023 : Mothball: 3 Trains; Normal Idle: 1 Train; Normal Running: 4 Trains
- 2024 – 2025 : Mothball: 4 Trains; Normal Idle: 1 Train; Normal Running: 3 Trains
- 2026 – 2027 : Mothball: 5 Trains; Normal Idle: 1 Train; Normal Running: 2 Trains

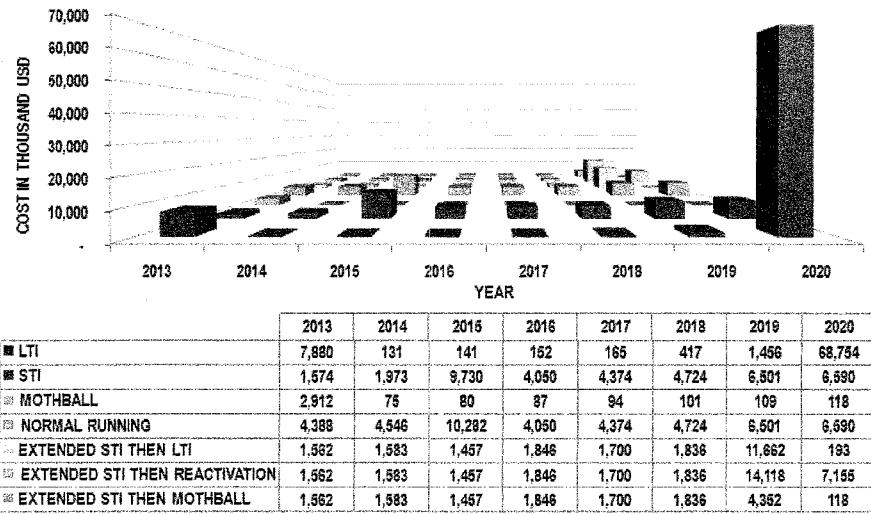
Reviewing PT BADAQ NGL proposal, followings are the Producers comments:

- o PERTAMINA – VICO – CHEVRON  
Referring to the Agreement for Use and Operation of the Plant which state that Plant Operator is obliged to maintain and upon the expiry of the agreement, surrender the Bontang Plant to the asset owner in good operating condition, Producers suggest to have 1 (one) train in LTI starting 2013.
- o TOTAL  
Put 1 (one) train in Mothballed and 1 (one) train in LTI starting 2013 or Put 2 (two) trains in LTI starting 2013. After having decision from Gol, 1 (one) train can be changed the status to Mothball.

In order to minimize the preservation cost that must be spent in the beginning of idle period, in the extra-ordinary BOC Meeting dated 19 July 2012, PT BADAQ NGL proposed a new method called extended STI which is hybrid of STI and LTI with the followings parameter:

- o Idle period: more than 2 years
- o Reactivation: 2 years max.
- o Amine: to be transferred to other trains
- o Insulation: to be kept in place
- o Manpower: to be maintained
- o Projects: All postponed to the reactivation year
- o Work Program: Only corrosion survey and its follow up repair will be conducted.

Followings are the cost comparison among all train scenarios taking Train A as the basis:



**Figure – 7. Cost Comparison (Extended STI, STI, LTI, Mothball and Normal Running)**

The meeting decided the followings:

- Starting 2013, one (1) train will be put in LTI and two (2) trains in Normal Idle.
- Before the end of 2012, Producers shall decide whether to change one (1) train in Normal Idle to Extended STI.

Considering the issue of the Train A, Main Cryogenic Heat Exchanger (A5E-1), overdue of Refrigerant Compressor Turbines (A4KT-1/2/3) overhaul in 2015, train shutdown for equipment inspection in 2015 therefore, Train A is chosen to be put in LTI first.

### Loading Dock-3

Dock occupancy simulation result in Figure – 8 shows that with two (2) loading docks, the occupancy rate is still lower than the maximum allowable occupancy rate, 55% (based on the Master Plan Study for 9 and 10 trains done by TOTAL in 1997).

Furthermore, considering the scheduled overhaul for Loading Dock-1 as well as the Preventive Maintenance Inspection (PMI) for Loading Dock-2 in 2013 and scheduled overhaul for Loading Dock-2 in 2014; Figure – 9 and Figure – 10 show the two (2) loading docks occupancy result incorporating overhaul program in one (1) loading dock.

With two (2) loading docks in operation, the occupancy in 2013 and 2014 is slightly higher than the allowable level (55%) while Loading Dock-1/2 are being overhauled. However, it is still manageable.

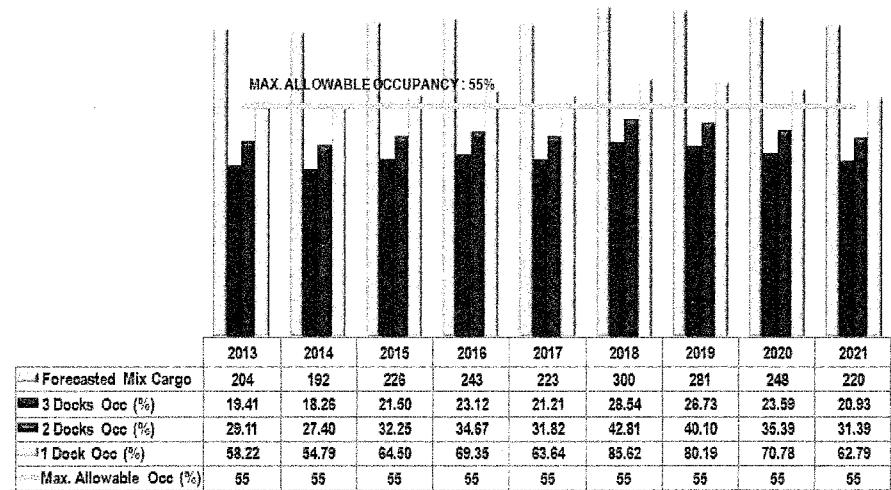


Figure – 8. Yearly Loading Dock Occupancy Rate

Considering the LNG for Eastern Region of Indonesia Project (LNG KTI Project) as briefly discussed in the Loading Dock-1/2/3 Major Overhaul Program, the previous proposal to mothball Loading Dock-3 might change since this project requires dedicated dock to accommodate small vessels involved.

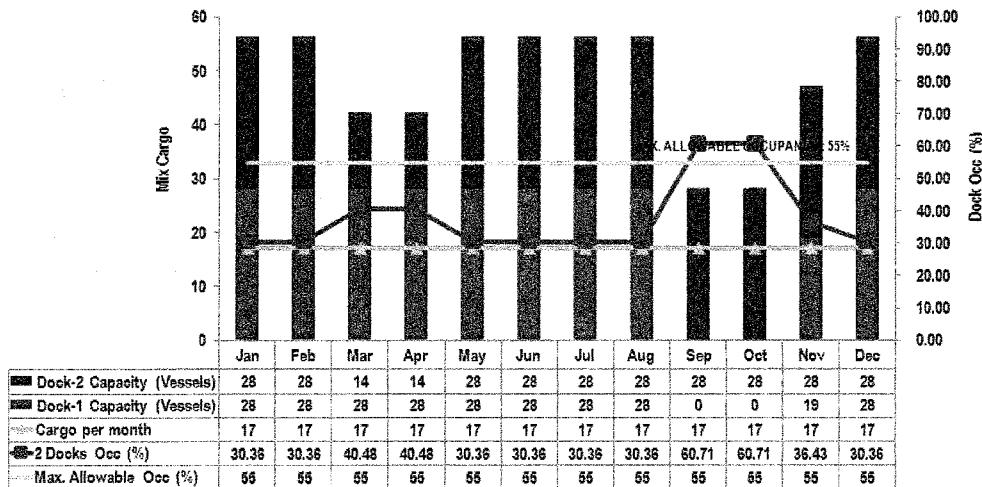
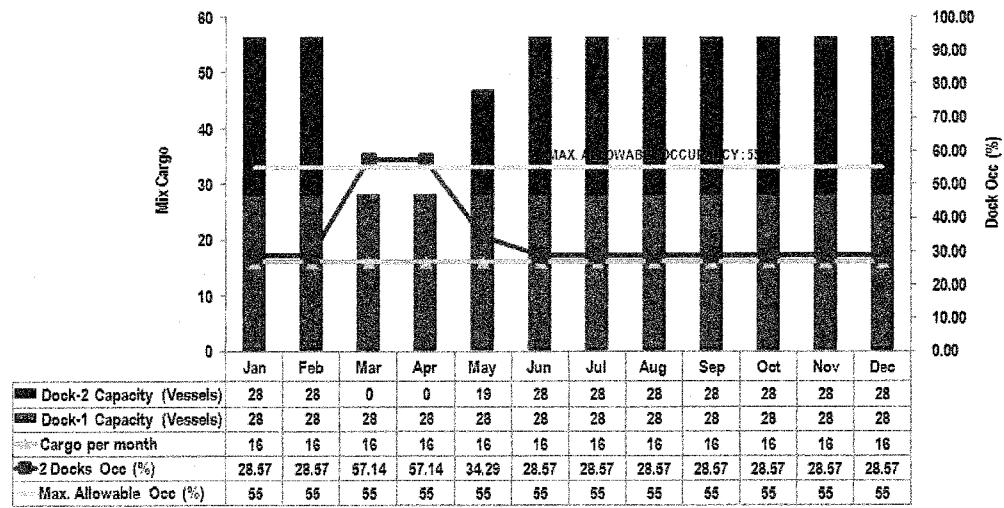
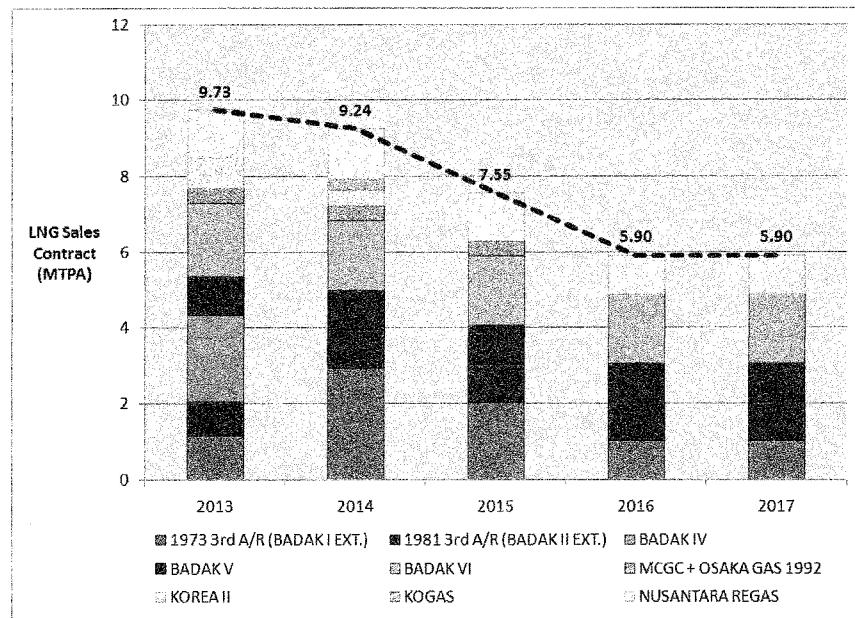


Figure – 9. Two Docks Occupancy Rate during Loading Dock-1 Overhaul in Sep – Nov 2013 (70 days) and Loading Dock-2 PMI in March – April 2013 (25 days)



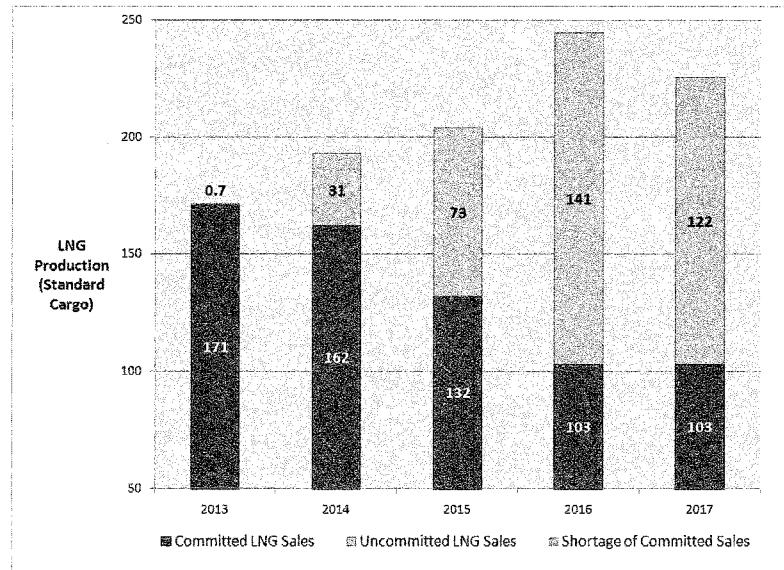
**Figure – 10.** Two Docks Occupancy Rate during Loading Dock-2 Overhaul in Mar – Mei 2014 (70 days) which is slightly higher than 55%

## V. Production Forecast [Champion: Operations Senior Manager]



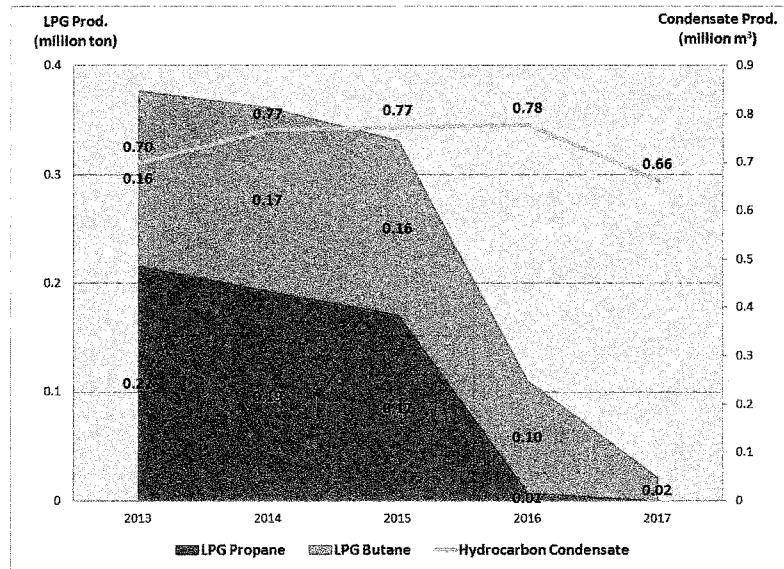
**Figure – 11.** LNG Sales Contracts

Figure – 11 shows the existing LNG sales contracts in the period of 2013 – 2017. Based on Seller's 1<sup>st</sup> Draft (ETA Notice) to all LNG Buyers dated October 31<sup>st</sup>, 2012, 2013 Bontang LNG allocation is equal to 171.5 standard cargoes. The shortage of committed cargoes in 2013 which equal to 17.3 standard cargoes (from originally 188.8 standard cargoes) is assumed to be allocated in 2014. The number of committed LNG cargoes in 2016 will be significantly reduced for about 61% (3.8 MTPA or equal to 68 standard cargoes) compare to the number of committed LNG cargoes in 2013.

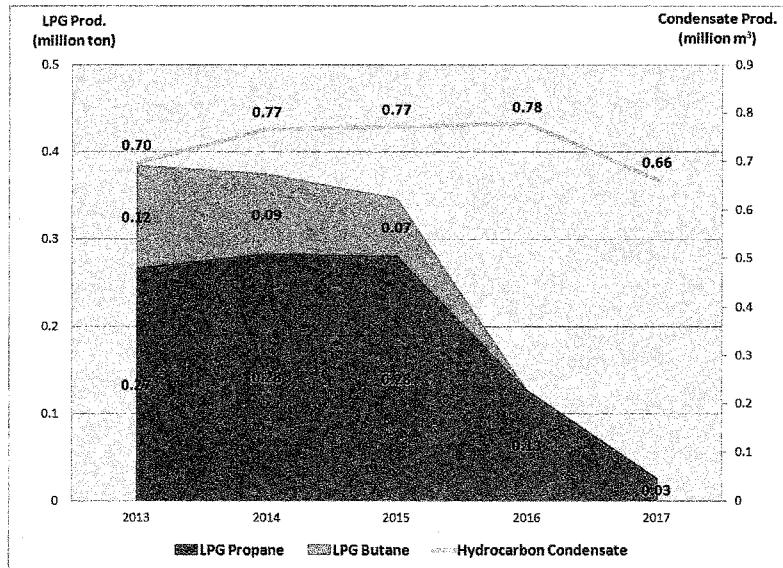


**Figure – 12. Overall LNG Production**

LNG production in the period of 2013 – 2017 is forecasted based on the feed gas figure. Figure – 12 shows the overall LNG production in standard cargo. In the next period of 2014 – 2017, since the volume of sales contracts becomes lower, the number of uncommitted cargo will continue to increase reaching the peak value of 141 standard cargoes in 2016.

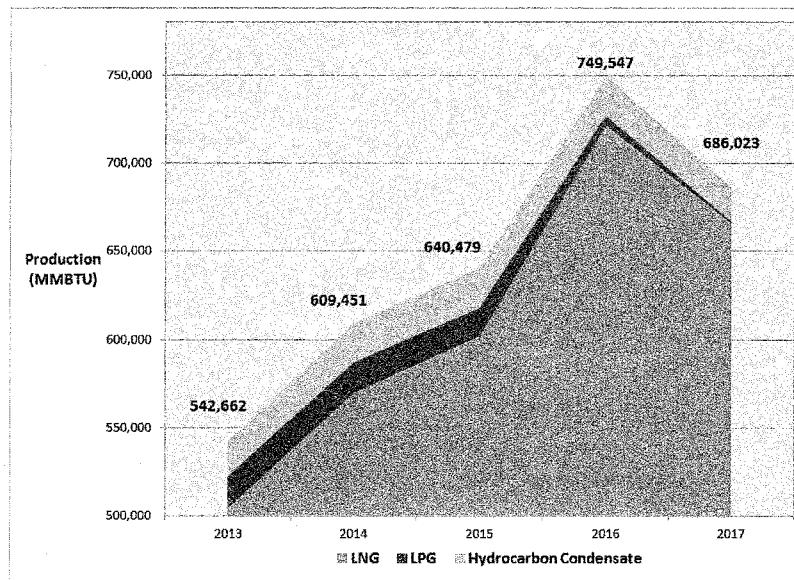


**Figure – 13a. Overall LPG and Hydrocarbon Condensate Productions (Propane Reinjection Mode)**



**Figure – 13b. Overall LPG and Hydrocarbon Condensate Productions (Butane Reinjection Mode)**

The production figures of LPG propane/butane and hydrocarbon condensate are shown in Figure – 13. The decrease of C<sub>3</sub>+ content in the feed gas will decrease the LPG (both propane and butane) and hydrocarbon condensate productions. Figure – 14 shows the overall productions in MMBTU.



**Figure – 14. Overall Productions in MMBTU**

## VI. SHEQ Strategic Plan [Champion: SHEQ Senior Manager]

Safety, Health, Environment and Quality in PT Badak NGL have been developed to improve the working culture. By the assessment of DNV with the International Sustainability Rating System (ISRS), PT Badak NGL SHEQ has improved its safety culture from Reactive culture to Interdependent culture.

As of 2011, PT Badak NGL has maintained the achievement for ISRS8 Level 8, which represents the highest rank for LNG plant.

From environment point of view, PT Badak NGL achieved the PROPER Gold Award from Kementerian Lingkungan Hidup in 2011. This is the highest rank for the Environment Protection and Management. Following this success, PT Badak NGL in 2012 also achieved the GOLDEN Flag SMK3 from Kementerian Tenaga Kerja & Transmigrasi.

For the next 2013 – 2017, PT Badak NGL plan to maintain and improve SHEQ achievement:

- 1) Continually review the SHEQ MS to cope with organization challenges.
- 2) Ensure that all element sponsors are committed to SHEQ MS implementation.
- 3) Maintain the impact on the environment.
- 4) Conduct regularly safety campaign.
- 5) Minimize road traffic accident.
- 6) Maintain current safety, quality and environment certification/awards:
  - ❖ ISRS8 Level 8 (obtained in 2010).
  - ❖ PROPER Gold (obtained in 2011).
  - ❖ GOLDEN Flag SMK3 (obtained in 2012).
  - ❖ ISO 9001, ISO 14001 and ISO 17025 (obtained in 2001, 2000 and 2009 respectively).
  - ❖ Zero Lost Time Injury and Safe Working Hours (starting from 2006).
  - ❖ Clean Development Mechanism (implemented since 2011).

## VII. Plant Reliability Forecast and Planning [Champion: Maintenance Senior Manager]

In the year of 2011, PT Badak NGL has successfully improved the reliability performance with the Plant Reliability Factor (PRF) recorded at 99.13% which exceeds the PRF target of 98.5%. The numbers of unscheduled shutdown were also lower than the targeted, 9 out of 10 maximum unscheduled shutdown with 3.5 out of 30 maximum train days of unscheduled shutdown.

With these achievements, PT Badak NGL is optimistic to achieve goal as targeted in the Reliability Roadmap in which gradually PT Badak NGL plans to achieve by 2014 reliability higher than 99% with less than 6 trips per year and in overall less than 20 train days of unscheduled shutdown.

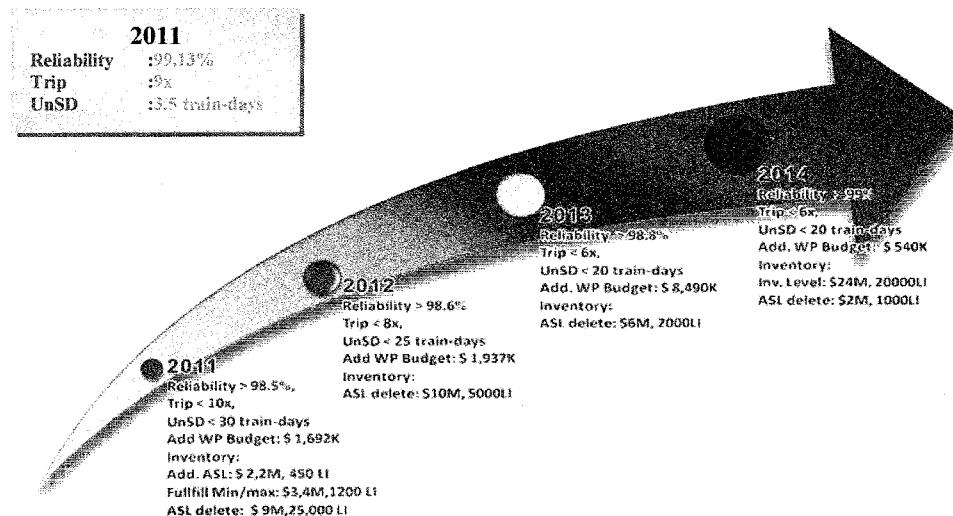


Figure – 15. Reliability Road Map

In order to improve the plant performance in term of reliability, PT BADAk NGL is planning to prepare the simulation analysis of LNG Process Train area based on the equipments reliability, how they are reliability-wise related. This simulation enables us to identify critical equipments in the plant, their effect to the entire system in the plant and quantitatively determine the optimum reliability allocation strategy to meet the reliability goals.

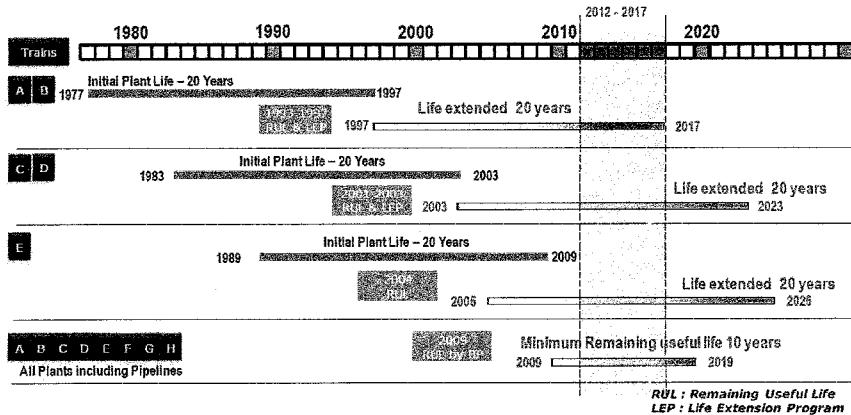
For inventory level reduction without sacrificing plant reliability, PT BADAk NGL is continuing to review the Potential Dead Stock material (PDS) to meet the target on reliability road map by enhancement in Price List Agreement (PLA), Consignment and possibility of Long-term Service Agreement (LSA), etc. while continuing the fulfillment of the CEC-1 material (the material which is related to production process and safety)

#### **Remaining Useful Life & Life Extension Program**

Based on the last Level-1 RUL in 2009 for all plant facilities including pipelines, it was resulted that even the oldest Train and supporting facilities still have a minimum 10 years of useful life. However, the Level-1 RUL is an assessment method based on the design condition and failure criterion only (creep, fatigue, corrosion – erosion and aging). The Level-2 RUL is a more detail method usually used in all assessed trains in PT BADAk NGL; this is based on the actual condition and equipment inspection history.

As shown in Figure – 16 that the design life of Train F and its supporting facilities will be reached in 2013, PT BADAk NGL is preparing the Level-2 RUL program. A total of 51 studies need to be conducted and 4 of them need to be carried out by third party. The studies will cover:

1. Fire Water Piping Corrosion & Flushing (USD 25,000)  
Intention: to assess current condition of fire water piping network and to analyze the causes of corrosion occurred in the pipes since the pipe already in service for almost 20 years.
2. FRP Analysis Study (USD 80,000)  
Intention: to determine the remaining useful life of the pipe and fitness for another 20 years of service (by taking samples).
3. Condition Assessment and Life Extension Study of Piping and Equipment (USD 300,000)  
Intention: to evaluate the equipment and piping based on review of the original design, current operation condition and inspection results, and to identify the items that have progressive damage mechanisms that can limit their life to less than 20 years of service.
4. Soil stability/settlement in pad (USD 60,000)  
Intention: to evaluate soil condition under slab concrete if there is a decreasing level caused by water leak.



**Figure – 16.** Plant Life plotted with RUL and LEP Program

PTB also plan to conduct Level-2 RUL study in Train G and Train H in 2016 and 2017 respectively. Upon the completion of the RUL assessment, the scope for Life Extension Program (LEP) will be developed to extend the plant life for another 20 years.

## VIII. Plant Maintenance [Champion: Maintenance Senior Manager]

The plant is to be maintained by conducting Preventive Maintenance (PM) and Corrective Maintenance as per PT BADAQ NGL's maintenance strategy. Work Order (WO) priority is based on the Equipment Criticality Rating (ECR) to ensure the plant equipment reliability is acceptable at all the time.

Preventive Maintenance program for LNG trains, Utilities, Tug Boat docking, Tug boat engine overhaul, Steam turbine and other equipment are time based with the following schedules:

- Train Shutdown for Statutory Equipment & PSV certification is every four (4) years
- Utilities Shutdown is every two (2) years mainly for Steam Boilers certification
- Steam Turbine Overhaul is every twelve (12) years.
- Tug Boat Docking is every two (2) years and four (4) years for Intermediate Survey (IS) and Special Survey (SS) respectively.
- Tug Boat Recertification is every four (4) years and revalidation is every year.
- Corrosion under Insulation (CUI) survey is every five (5) years.
- Loading Arm overhaul is every ten (10) years.
- Gas Turbine is maintained based on running hours as recommended by Original Equipment Manufacturer (OEM)

### Trains and Utilities Scheduled Shutdown

In the period of 2013 – 2017 there will be 10 train scheduled shutdowns as follows:

**Table – 1. Train Scheduled Shutdown**

Train	2013	2014	2015	2016	2017
Train A*	-	-	-	-	-
Train B	**	-	-	-	-
Train C	1 – 15 Aug	-	-	15 Sep – 14 Oct	-
Train D	1 – 15 Aug	-	-	1 – 30 Sep	-
Train E	-	1 – 30 Aug	-	-	-
Train F***	1 – 30 Sep	7 Aug – 5 Sep	-	-	-
Train G	1 – 30 May	-	-	-	1 – 30 May
Train H	-	-	-	14 May – 12 Jun	-

\* Train A scheduled shutdown is dropped in line with the proposed train operating mode choosing this train to be long term idled.

\*\* B4KT-1/2/3 (Compressor Turbines) overhaul should be done first if Train B needs to be operated in the future.

\*\*\* Train F scheduled shutdown in 2013 will focus on insulation and DCS replacement, while in 2014, the program will focus on stationary equipments and PSVs.

### Loading Dock-1/2/3 Major Overhaul Program

Based on the last Loading Dock overhaul; it must be noted that in 2013 and 2014 there will be overhaul program for LNG Loading Arms of Loading Dock-1 and Loading Dock-2 respectively. Specifically for LPG Loading Arms in Loading Dock-2, the overhaul must be conducted at the latest in 2015. Considering the number of LPG shipment that still can be managed and the current condition of Loading Dock-3, it is recommended to conduct the LNG and LPG Loading Arms overhaul in Loading Dock-2 in the same period, 2014.

The duration between overhauls is defined based on PT BADAQ NGL experience in extending the interval from 5 – 7 years based on the OEM recommendation to 10 years. Extending the interval to more than 10 years will create more problem as experienced in Loading Dock-3. Table – 2 shows the Loading Dock-1/2/3 scheduled overhaul.

**Table – 2. Loading Dock Overhaul**

Loading Dock	New Built	Last Overhaul	Overdue	Next Overhaul Schedule
Dock-1	1977	2003	2013	Sept – Nov 2013 (70 days)
Dock-2 LNG*)	1989	2004	2014	Mar – May 2014 (70 days)
Dock-2 LPG*)	1989	2005	2015	Mar – May 2014 (70 days)
Dock-3	1998	-	2008	2008 (overdue)

\*) Loading Dock-2 Preventive Maintenance Inspection (PMI) will be conducted in Mar – April 2013 (25 days)

Prior to the major overhaul, a Preventive Maintenance Inspection (PMI) will be carried out one year before to assess the equipment condition and define the major overhaul scope of work. Six (6) months will be the minimum duration between the PMI and the overhaul.

As shown in the table, Loading Dock-3 overhaul has been overdue since 2008 which is mainly due to uncertain operational status. Considering the LNG for Eastern Region of Indonesia Project (LNG KTI

Project) which requires dedicated loading dock for small vessels which is targeted to be completed in 2014, therefore, Loading Dock-3 is chosen to prevent any interference for the existing LNG Shipment Schedule at Loading Dock-1/2. As a result, the Loading Dock-3 must be overhauled and modified accordingly. The time for Loading Dock-3 overhaul will be decided later.

#### **Refrigerant Compressors' Steam Turbines 4KT-1/2/3 Overhaul Program**

As a part of routine work program to maintain the equipment reliability, Table – 3 shows the last and the next overhaul schedule for 4KT-1/2/3 major overhaul.

**Table – 3. Steam Turbine Overhaul**

Equipment Tag No.	Last Overhaul	Next Overhaul
Train A4KT-1/2/3	2003	2015
Train B4KT-1/2/3	1999	2011 (overdue)
Train C4KT-1/2/3	2008	2020
Train D4KT-1/2/3	2010	2022
Train E4KT-1/2/3	2006	2018
Train F4KT-1/2/3	2010	2022
Train G4KT-1/2/3	2005	2017
Train H4KT-1/2/3	2000	2012 (overhauled)

In the period of 2013 – 2017, the next major overhaul should be conducted at the soonest of 2015 for Train A4KT-1/2/3 and 2017 for Train G4KT-1/2/3. Specifically for Train B4KT-1/2/3, the overhaul delays due to uncertain operational status whether the train will be mothballed or long term idled.

#### **Marine Fleet Docking**

As a fulfillment of the national regulation concerning on sea transportation safety in the period the 2013 – 2017, Table – 4 shows the fleet survey schedule. It should be noted that the period between surveys can be extended up to 3 months adjusted to fulfill the operational need.

**Table – 4. PT BADAQ NGL Marine Fleet Survey Schedule**

Boat Fleet	2013	2014	2015	2016	2017
<b>Tug Boat Fleet</b>					
TB Bontang-1	-	-	-	-	-
TB Bontang-2	-	-	-	-	-
TB Bontang-3	Already in abandon process (FUPP)				
TB Bontang-4	AS	SS	AS	IS	AS
TB Bontang-5	AS	SS	AS	IS	AS
TB Bontang-6	-	AS	SS	AS	IS
TB Bontang-7	-	AS	SS	AS	IS
TB Bontang-8	-	AS	SS	AS	IS
<b>Mooring Boat Fleet</b>					
MB Beras Basah	-	AS	SS	AS	IS
MB Berebes-1	-	AS	SS	AS	IS
MB Berebes-2	IS	AS	SS	AS	IS
<b>Patrol Boat Fleet</b>					
Patrol Boat-1	AS	-	IS	AS	SS
Patrol Boat-2	AS	-	IS	AS	SS

**Note**

AS : Annual Survey for Seaworthiness Certificate renewal

IS : Intermediate Survey

SS : Special Survey for Class Certificate renewal

**Tug Boat Fleet Renewal Program**

In 2009, Tug Boat Fleet assessment was conducted by Matthew Daniel Company. It revealed that TB-1/2 would not be able to be operated after 2012 due to insufficient bollard pull. Considering the condition of TB-3 that cannot be put back in service due to engine problem, starting in 2013 there are only five (5) tug boats servicing the forthcoming vessel.

Refer to the 2013 – 2017 shipment profile as shown in Figure – 8 above and to maintain maximum allowable dock occupancy rate below 55%, two (2) loading docks will be needed to support the operation. Servicing two (2) loading docks, based on the PT BADAK NGL's loading dock operational philosophy, five (5) tug boats are required considering the possibility of simultaneous loading (Basic Need, N)

For anticipating unpredicted failure, another tug boat is needed in addition to the "N" requirement (Mandatory Need, N+1) and one (1) more tug boat to replace the docking tug boat temporarily (Reliability Need, N+2). In the extra-ordinary BOC meeting held on September 14th 2011, PT BADAK NGL delivered a presentation which proposed the followings:

1. N+1 Fulfillment : Building new tug boat
2. N+2 Fulfillment : Spot chartering tug boat, 180 days per year

However, no approval was made regarding the above proposals. Before making a decision for tug boat renewal program, TEPI suggested a panel of shipping experts (PERTAMINA, JILCO, VICO and TOTAL) to come with a recommendation on the minimum number of required tug boats. The BOC agreed that starting 2013, PT BADAK NGL will have:

1. One (1) year time chartered tug boat with an extension option of two years (one year + one year). At the end of 2013, the one year extension will be decided by BOC based on feed gas delivery forecast (LNG Shipments – two docks simultaneous loading occurrences)
2. One (1) spot chartered tug boat to maintain at all the time (N+1) tug boats when one of the existing tug boats is unavailable due to docking.

**Process Control System Obsolescence**

PT BADAK NGL implements Yokogawa Distributed Control System (DCS) as Process Control System (PCS) with the following details:

**Table – 5. Yokogawa's DCS Production and Obsolescence Year**

Train	DCS Generation	Production Year	End of Support Year
Train A	Centum CS	1993	2015
Train B	Centum CS	1993	2015
Train C	Centum CS	1993	2015
Train D	Centum CS	1993	2015
Train E	Centum CS 3000	1998	2020
Train F	Centum XL	1988	2010
Train G	Centum CS	1993	2015
Train H	Centum CS	1993	2015
Utilities I	Centum CS / Centum CS 3000	1993 / 1998	2015 / 2020
Utilities II	Centum CS / Centum CS 3000	1993 / 1998	2015 / 2020
Storage & Loading	Centum CS 3000	1998	2020

In order to anticipate the obsolescence that will significantly impact to plant reliability, Table – 6 is the strategic program designed to start the migration of Centum CS and Centum XL before 2015 (before the end of support year that will be followed with obsolescence period in the next 10 years).

**Table – 6. PCS Obsolescence Strategy**

Train	Migration	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Train A		Planned to be LTI started 2013												
Train B		Possibly will be put in extended STI started 2013												
Train C	Full											✓	✓	✓
Train D	Full											✓	✓	✓
Train E	Full								✓	✓	✓			
Train F	Full		✓						✓	✓	✓			
Train G	Full					✓	✓	✓						
Train H	Full					✓	✓	✓						
Utl. I	1 <sup>st</sup> Partial						✓	✓						
Utl. I	2 <sup>nd</sup> Partial								✓	✓	✓			
Utl. II	1 <sup>st</sup> Partial	✓	✓											
Utl. II	2 <sup>nd</sup> Partial								✓	✓	✓			
S&L	Full			✓	✓	✓								

## **IX. Project Management**

**[Champion: Technical Senior Manager]**

As continuous improvement PT Badak NGL executes projects to improve plant reliability and efficiency as well as non-plant related projects to support the LNG Plant.

For the year 2013 to 2017, the number of projects to execute will be decreasing. However there will be significant increase in 2014 for the reliability programs as shown in Table – 7.

**Table – 7. Overall Summary of Tier I,II, III Capital Project (in Thousand of Dollar)**

TIER	Category	Revised	Forecast	Forecast	Forecast	Forecast	Forecast
		Budget	2012	2013	2014	2015	2017
<b>I</b>	Expenditures						
	- Identified Projects	90	20	161	-	-	-
	- Identified Purchase Items	3,032	3,626	-	-	-	-
	- Unidentified Items	-	-	2,839	3,000	3,000	3,000
	<b>Total Tier-I</b>	<b>3,122</b>	<b>3,646</b>	<b>3,000</b>	<b>3,000</b>	<b>3,000</b>	<b>3,000</b>
<b>II</b>	Expenditures						
	- Carry Over Projects	-	-	-	-	-	-
	- Carry Forward Projects	1,268	4,589	2,188	800	600	250
	- New Projects	1,122	985	2,050	600	250	1,500
	<b>Total Tier-II</b>	<b>2,390</b>	<b>5,574</b>	<b>4,238</b>	<b>1,400</b>	<b>850</b>	<b>1,750</b>
<b>III</b>	Expenditures						
	- Carry Over Projects	1,012	-	-	-	-	-
	- Carry Forward Projects	13,314	7,238	6,410	12,800	11,400	3,000
	- New Projects	20	553	5,120	7,000	7,000	7,000
	<b>Total Tier-III</b>	<b>14,346</b>	<b>7,791</b>	<b>11,530</b>	<b>19,800</b>	<b>18,400</b>	<b>10,000</b>
<b>TOTAL TIER I, II &amp; III</b>		<b>19,858</b>	<b>17,011</b>	<b>18,768</b>	<b>24,200</b>	<b>22,250</b>	<b>14,750</b>

Highlights for the above projects are as follows:

#### A. Plant Related Projects

- Tier I: 2013- Continuous Emission Monitoring Replacement  
2014- Integrating Load Sharing Between Utilities-I and Utilities-II  
2014- Train G 4LV-6 Improvement
- Tier II: 2012- Woodward 501 at 31-PG-10/13/14 Replacement  
2012- Fire Water Pumps Reliability Improvement  
2013- MP-LP Steam Letdown Station at Train G & H Utilities II  
2013- Additional Pre-Heater in Regeneration Gas Circuit at Train F  
2014- 24G LNG Recirculation Pump Spare (Reverse Engineering)  
2015- Upgrade ESD/EDP Regent Plus Train G & P16  
2016- Replacement of Obsolete Generator and Large Transformer (34.5 KV) Protection Relay
- Tier III: 2010- Module I & II Cooling Water Area Reliability Improvement  
2011- Flare Gas Recovery Project (Phase I)  
2012-ABB STAL Gas Turbine Control System PG-15 Retrofit  
2013- Implementation of RO - EDI  
2014- Flare Gas Recovery Project (Phase II)

#### B. Non-Plant Related Projects

- Tier I: 2012- Security Master Plan Replacement
- Tier II: 2012- Main Warehouse Roof Replacement Phase II
- Tier III: 2013- Community Water Losses - PC Area Improvement Phase II

Detailed list of projects is provided in Attachment – 1.

## X. Human Resources Forecast & Planning [Champion: HRD Senior Manager]

### Organization

In accordance with the train operational mode which requires man power for six (6) trains, the following figure shows the man power demography from 2012 until 2017.

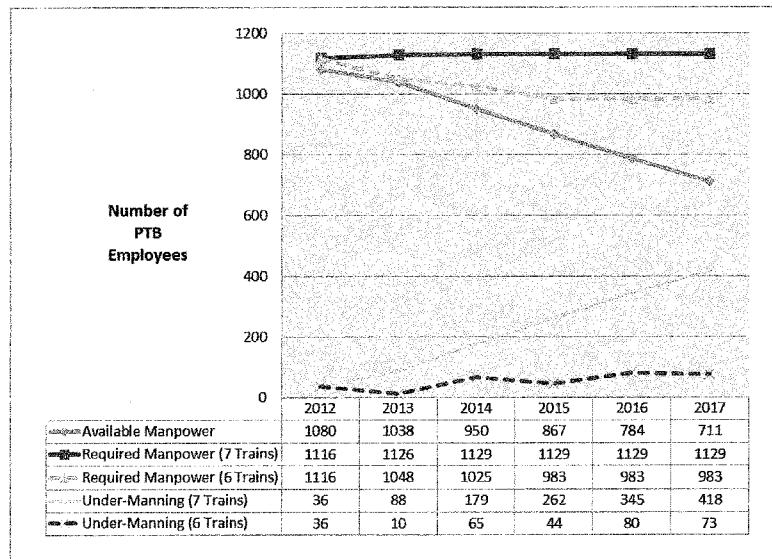


Figure – 16. Manpower Demography

In order to fulfill requirement of six (6) trains in operation which requires total PTB employees of 983 the following table shows the number of additional manpower to be recruited:

Table – 8. Recruitment Plan

Parameter	YEAR					
	2012	2013	2014	2015	2016	2017
Active Manpower	1147	1116	1048	1025	986	983
Pre - retirement	67	78	88	83	83	73
Available Manpower	1080	1038	960	942	903	910
Forecast Manpower	1116	1048	1025	986	983	983
Recruiting	36	10	65	44	80	73

In more detail about the under-manning position to be fulfilled in the recruitment plan as described in the above table, Table – 9 shows the vacant positions as the recruitment subject.

**Table – 9. Detail Recruitment Plan**

Position	YEAR						TOTAL
	2012	2013	2014	2015	2016	2017	
Engineers	16	-	10	2	1	2	31
Auditors	2	-	1	1	-	-	4
Accountants	3	1	-	-	-	1	5
HR Business Partners	1	-	-	-	-	-	1
Operators	14	-	9	17	15	17	72
Technicians / Mechanics	-	6	42	23	17	14	102
Analysts	-	3	3	1	1	2	10
Others	-	-	-	-	46	37	83
<b>TOTAL</b>	<b>36</b>	<b>10</b>	<b>65</b>	<b>44</b>	<b>80</b>	<b>73</b>	<b>308</b>

Recruitment source will be utilizing internally excess manpower for non-core positions; while for the core positions, external recruitment shall be carried out in yearly basis as necessary.

### **Compensation & Benefit**

PT Badak NGL remuneration package is always based on

- Market survey
- Best industrial practices

The continuous improvement that has been made is intended to

- Motivate employees to perform better
- Retain the best employees by implementing competitive remuneration package.
- At the same time maintain the internal fairness and
- External competitiveness

### **Industrial Relations & Succession Planning**

Good industrial relations will need to be maintained by empowering HRD Department as a frontline to deal with the Union and by encouraging the Union to be in partnership in facing company future challenges.

A career development program, talent pool and leadership development program will be established to anticipate senior manager retirements in 2010–2013. This will allow PT Badak NGL to successfully regenerate the top management level.

### **Organization Restructuring Program**

In 2009, PT Badak NGL commissioned PT Opus Management Indonesia (OPUS) to undertake the development of organization restructuring program. The objective of organization restructuring program is to produce a revised structure that will be suitable for PT Badak NGL that enables the company to respond to its changing environment and the transformation strategy to help the change agents in implementing the changes in the structure. The decision to re-design the organization structure of PT Badak NGL is stimulated by the following factors:

- Reduction in natural gas feedstock which will lead to reduction in the number of running trains (and finally will lead to reduction in manning levels).

- Current structure has too many layers which may result in the company becoming rigid, less flexible and hinders an effective flow of information because it needs several steps to pass the information from top to bottom.
- Inconsistent grouping of jobs, in a sense that the grouping did not have a distinct pattern. As a result, there are some overlaps of some job functions from different departments.
- Inconsistent span of control. Some job positions have too wide control then there would be an issue of a lack of coordination and people management, while the others have narrow span of control that may lead to over-supervision resulting in an insufficient scope for subordinates to use their own judgment and initiative and may lead to de-motivation.

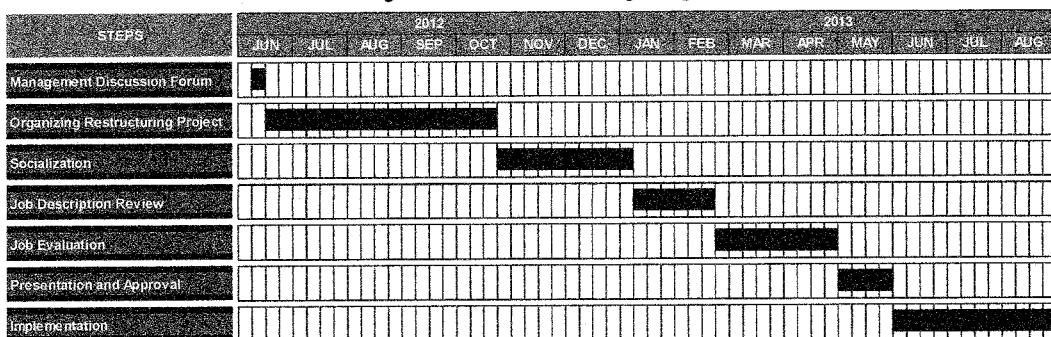
The organization restructuring was done in January 2010 and was aligned with the study which had been made by OPUS.

After a year of the implementation of organization restructuring, in the regards to evaluate the implementation of organization restructuring, OPUS was assigned to get the objective and effective view which may lead to a better movement. From that evaluation and analysis process, it is expected the root cause and what factors become the obstacle of the implementation can be distinguished then a new innovation, renovation or improvement can be implemented.

OPUS will review and evaluate the implementation of organization restructuring which already done by PT Badak NGL based on previous organization restructuring study done in 2009. The evaluation will include restructuring, coordination, manpower planning and job functions. OPUS will also analyze and give recommendations to support PT Badak NGL operations. The recommendations will include the organization structure, job function, manpower (qualification and manning), etc. Each steps recommendation and implementation strategy as a solution to solve the problems in each department will cover road map and time frame of the implementation.

The strategic plan will be re-drawn on an annual basis to take account of real business and organization situations. The real impact of the decrease in gas supply has only a limited impact on the workforce levels and that is almost entirely within the production division, primarily Operations, Maintenance and Technical. Far more impact on manning levels is felt from the desire for a fit organization. This desire reflects both an anticipation of future business needs, but also the recognition of an organization that over the years has grown and modified its shape and structure in various ways to accommodate short-term problems or issues.

**Table – 10. Organization Restructuring Program Schedule**



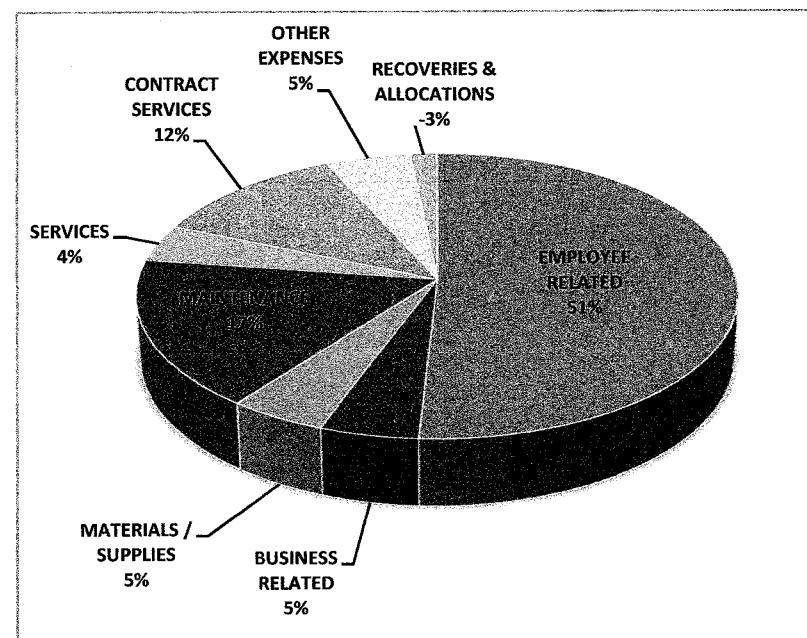
## **XI. Budgeting Forecast, Planning & Cost Efficiency**

[Champion: AOC Senior Manager]

The Operating Expense (OPEX) which in Original Budget 2013 accounts for 81% of the Total Cash Expenditure (after VAT on gas processing) is distributed to numerous categories. Figure – 17 below shows the OB 2013 each categories contributing percentage.

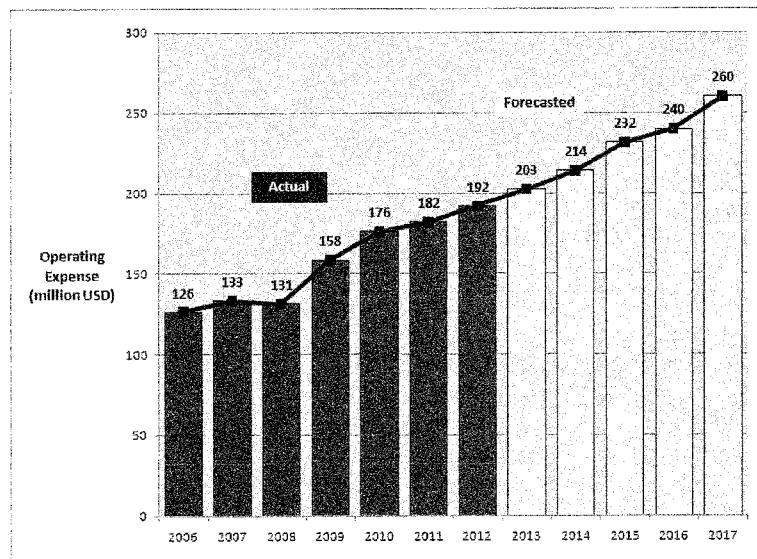
Employee related cost which includes employee compensation, benefit, taxes and termination and relocation, takes 53% of the overall OPEX. Even though there is an average of 5% employee reduction in the period 2006 – 2013, the employee related cost continues to increase by 9%.

Maintenance cost is the second largest expense category with 17%. Business Related is the largest increasing expenses with an average increase of 9.4%.



**Figure – 17. 2013 Original Budget Distribution**

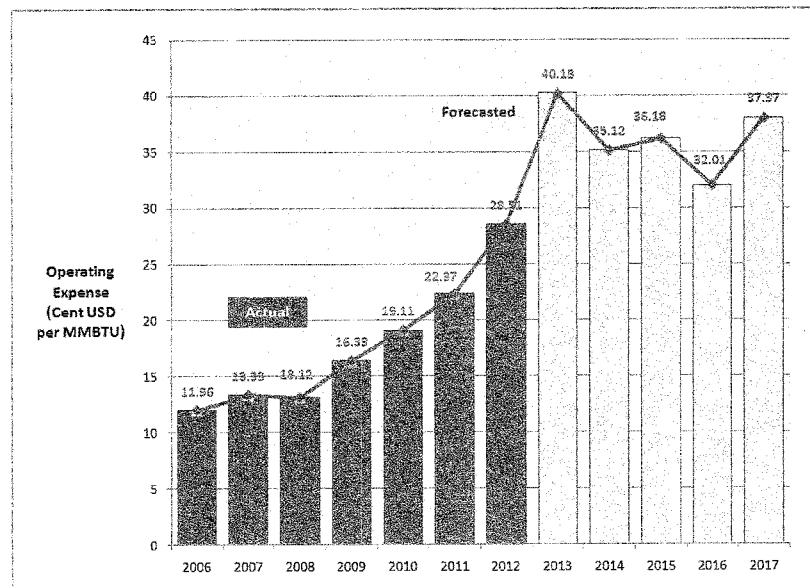
All assumptions made to the budgeting estimation are provided in the Detail Budget – Assumptions (Operating Expenses). These increases are then used to forecast each category in the period 2014 – 2017. The overall is plotted in Figure – 18. It shows an average of 5.4% increase in the overall OPEX is expected for the period 2013 – 2017.



**Figure – 18. Operating Expense with Retirement (in Million USD)**

Ref: 2006-2011 Actual Budgets, 2012 Revised Budget, 2013 Original Budget, 2013-2017 Forecasted Budgets

Combining with the overall MMBTU production (LNG, LPG and Condensate), the operating expense in cents per MMBTU is shown in Figure – 19 below.



**Figure – 19. Operating Expense with Retirement (in Cent USD per MMBTU)**

Ref: 2006-2011 Actual Budgets, 2012 Revised Budget, 2013 Original Budget, 2013-2017 Forecasted Budgets

## B. New Business

[Champion: CSP&BD Senior Manager]

### Products

PT Badak NGL 35 years success in operating and maintaining the Bontang LNG Plant has open up an opportunity to share the experience and technical know-how to domestic and international audiences specifically in the LNG industry and in the Gas Industry at large. PT Badak NGL gateways for knowledge transfer are namely:

- Badak Learning Center (BLC)
- Badak Operation and Maintenance (O&M) Services

This new business will be based on market analysis which includes Product, Market Analysis, Competition & Buying Patterns, Strategy & Implementation and Financial Plans.

### Market Analysis Summary

#### Market Description

The surge of the LNG industry caused an increasing demand for highly skilled LNG professionals. With 20 being developed and 13 planned LNG Plants, it is a large market to explore.

PT BADAk NGL can offer not only a training ground and a training program for future LNG Operator but also, ready to work skilled LNG Professionals to support the LNG Industry. These skilled LNG Professionals can support in all stages of the project, i.e: design stages, engineering, procurement and construction, commissioning, start up and day to day operations.

Recently contact with Angola LNG, Liquid Niugini LNG, Donggi-Senoro LNG, Papua New Guinea (PNG) LNG, Masela LNG. Even On-Job Training for future Ichthys LNG (INPEX).

## **Market Segmentation**

Table – 11 shows previous works and near future works with country and gas producers, the market segment for PT Badak NGL is LNG Plant in the developing countries.

**Table – 11. The List of Previous On Job Training Clients**

Tangguh LNG	Indonesia	BP
Yemen LNG	Yemen	Total
Angola LNG	Angola	Chevron, Total, BP, ENI
Ichtyas LNG &Abadi LNG	Australia & Indonesia	INPEX, Total

Ties with current gas producers and buyers are strong in attaining customer. To be more precise the majority of customer comes from LNG projects in the developing countries. It is on these bases the market segmentation for BLC and O&M be made.

Below are the target markets out of all the LNG Project under construction and planned:

- Donggi-Senoro LNG Plant (Indonesia)
- Tangguh LNG Plant – 3 (Indonesia)
- Brass LNG Plant (Nigeria)
- Delta Caribe LNG Plant (Venezuela)
- Liquid Niugini LNG Plant (Papua New Guinea)
- PNG LNG Plant (Papua New Guinea)
- Olokola LNG Plant (Nigeria)
- Pars LNG Plant (Iran)
- Persian LNG (Iran)
- Sikhda-GL1K Rebuild (Algeria)
- Arzew GL3Z (Algeria)

## **ATTACHMENT – 1**

### **DETAIL BUDGETS**

1. Total Expenditure Summary
2. Operating Expenses Summary
3. Assumptions for Operating Expenses
4. Offsite Medical Cost
5. Plant Maintenance Summary
6. Budget Summary for TIER-I/II/III Capital Projects

**5 YEARS BUSINESS PLAN 2013 - 2017**  
**TOTAL EXPENDITURE**

	<u>OB</u> 2013	2014	<u>Forecast</u>		
			2015	2016	2017
<b><u>Cash Expenditures</u></b>					
<b>Operating Expenses W/O Retirement Costs</b>					
Retirement Cost					
Total OPEX with Retirement Costs	202,593	214,060	231,789	239,956	260,495
<b>Capital Expenditures</b>					
Tier I	3,646	3,000	3,000	3,000	3,000
Tier II	5,574	4,238	1,400	850	1,750
Total Capital Expenditures	9,220	7,238	4,400	3,850	4,750
<b>Working Capital Changes</b>					
Inventory	999	634	634	634	634
Other Accounts	(1,664)	(1,108)	(1,108)	(1,108)	(1,108)
Total Working Capital Changes	(665)	(474)	(474)	(474)	(474)
<b>Total Operating Expenditures</b>					
Owners' Cost Expenditure	465	583	583	583	583
Tier III Capital Expenditures	7,791	7,960	11,860	8,300	8,300
	8,256	11,530	19,800	18,400	10,000
<b>Total Cash Expend. Before YPVDP-GHS</b>	<b>219,404</b>	<b>232,354</b>	<b>255,516</b>	<b>261,732</b>	<b>274,772</b>
YPVDP Golden Hand Shake Program					
Cost Impact on LTI	7,184				
<b>Total Cash Expend. After YPVDP-GHS</b>	<b>226,588</b>	<b>232,354</b>	<b>255,516</b>	<b>261,732</b>	<b>274,772</b>
VAT on Gas Processing	22,659	23,235	25,552	26,173	27,477
<b>Total Cash Expend. After VAT on Gas Processing</b>	<b>249,247</b>	<b>255,589</b>	<b>281,067</b>	<b>287,905</b>	<b>302,249</b>
Operating Expenses/ MMBTU with Retirement	40.18	35.12	36.18	32.01	37.97
<b>Total MMBTU</b>	<b>504.23</b>	<b>609.45</b>	<b>640.59</b>	<b>749.55</b>	<b>686.02</b>
<b>Standard Cargoes</b>	<b>170.65</b>	<b>200.40</b>	<b>210.85</b>	<b>246.70</b>	<b>225.80</b>

**5 YEARS BUSINESS PLAN 2013 - 2017**  
**OPERATING EXPENSE**

	OB 2013	Forecast 2014	Forecast 2015	Forecast 2016	Forecast 2017
<b><u>EMPLOYEE RELATED</u></b>					
Empl.Compensation - National	47,036	51,116	55,551	60,370	65,607
Empl.Benefits - National	18,276	19,861	21,585	23,457	25,492
	-----	-----	-----	-----	-----
	<b>65,312</b>	<b>70,978</b>	<b>77,135</b>	<b>83,827</b>	<b>91,099</b>
Termination & Relocation	22,562	24,519	26,646	28,958	31,470
Employee related taxes	18,656	20,274	22,033	23,945	26,022
	-----	-----	-----	-----	-----
	<b>106,530</b>	<b>115,772</b>	<b>125,815</b>	<b>136,730</b>	<b>148,592</b>
<b><u>BUSINESS RELATED</u></b>					
Termination & Relocation					
Company Business	1,967	2,152	2,354	2,575	2,816
Offsite Medical	5,868	6,610	7,056	7,905	8,649
Training	2,193	2,399	2,624	2,870	3,140
	-----	-----	-----	-----	-----
	<b>10,028</b>	<b>11,160</b>	<b>12,033</b>	<b>13,350</b>	<b>14,605</b>
<b><u>MATERIALS / SUPPLIES</u></b>					
Catalysts & Chemicals	2,666	2,732	2,799	2,868	2,938
Operating Supplies	5,232	5,361	5,493	5,628	5,766
Fuel, Lubes & Greases	2,031	2,081	2,132	2,185	2,238
	-----	-----	-----	-----	-----
	<b>9,929</b>	<b>10,173</b>	<b>10,424</b>	<b>10,680</b>	<b>10,943</b>
<b><u>MAINTENANCE</u></b>					
Plant Maintenance	29,962	26,437	29,663	21,724	24,962
Community Maintenance	4,833	6,526	7,039	7,600	8,207
Other Maintenance	526	526	526	526	526
	-----	-----	-----	-----	-----
	<b>35,321</b>	<b>33,489</b>	<b>37,228</b>	<b>29,850</b>	<b>33,695</b>
<b><u>SERVICES</u></b>					
Equip.Rental/Leases/Charter	8,326	9,097	9,940	10,861	11,868
Communications	607	663	725	792	865
	-----	-----	-----	-----	-----
	<b>8,933</b>	<b>9,761</b>	<b>10,665</b>	<b>11,653</b>	<b>12,733</b>
<b><u>CONTRACT SERVICES</u></b>					
Computer Services	1,383	1,454	1,528	1,606	1,687
Catering	1,346	1,415	1,487	1,563	1,642
Pipeline Maintenance	4,423	4,649	4,886	5,135	5,397
Service Orders	2,834	2,979	3,130	3,290	3,458
Other Contract Services	14,609	15,354	16,137	16,960	17,825
	-----	-----	-----	-----	-----
	<b>24,595</b>	<b>25,849</b>	<b>27,167</b>	<b>28,553</b>	<b>30,009</b>
<b><u>OTHER EXPENSES</u></b>					

Community Development	1,251	1,284	1,284	1,284	1,284
Foundation Subsidies	1,329	1,364	1,364	1,364	1,364
Public Relations	1,251	1,501	1,801	2,162	2,594
Insurance	2,535	2,736	2,952	3,186	3,438
Taxes	2,372	2,420	2,468	2,518	2,568
Miscellaneous	1,890	1,985	2,084	2,188	2,297
	<b>10,628</b>	<b>11,289</b>	<b>11,954</b>	<b>12,702</b>	<b>13,546</b>
<b><u>RECOVERIES &amp; ALLOCATIONS</u></b>					
Recoveries	(2,416)	(2,461)	(2,507)	(2,553)	(2,600)
Allocations	(955)	(973)	(991)	(1,009)	(1,028)
	<b>(3,371)</b>	<b>(3,434)</b>	<b>(3,497)</b>	<b>(3,562)</b>	<b>(3,628)</b>
<b>TOTAL</b>	<b>202,593</b>	<b>214,060</b>	<b>231,789</b>	<b>239,956</b>	<b>260,495</b>
	<b>=====</b>	<b>=====</b>	<b>=====</b>	<b>=====</b>	<b>=====</b>

**5 YEARS BUSINESS PLAN 2013 – 2017**  
**ASSUMPTIONS – OPERATING EXPENSES**  
(In Thousands of US Dollars)

**Cost Category Assumptions**

1. Employee Related Expenses are forecasted based on the average increase for the past 8 years (Actual Budget 2006 – 2011, Revised Budget 2012, Original Budget 2013).
2. Business Related Expenses except for Offsite Medical are based on the average increase for the past 8 years (Actual Budget 2006 – 2011, Revised Budget 2012, Original Budget 2013).  
Offsite Medical starting mid 2011 is on capitation basis, therefore forecasting is based on HR forecasted figures.
3. Material & Supplies forecasted based on the average increase for the past 8 years (Actual Budget 2006 – 2011, Revised Budget 2012, Original Budget 2013).
4. Maintenance except for Other Maintenance is based on Plant and Community Maintenance Program in 2013 – 2017. Other Maintenance is assumed not change from 2013 to 2017.
5. Services are forecasted based on the average increase for the past 8 years (Actual Budget 2006 – 2011, Revised Budget 2012, Original Budget 2013).
6. Contract Services except for Pipeline Maintenance is based on the average increase for the past 8 years (Actual Budget 2006 – 2011, Revised Budget 2012, Original Budget 2013).
7. For Other Expenses items:
  - Community Development is assumed not change from 2013 to 2017.
  - Foundation Subsidies is assumed not change from 2013 to 2017.
  - Public Relation very fast and high increase for publication in newspapers and other media with increment of 20% per annum.
  - In the period of 2013 – 2017, a constant 7 trains is required (N+1) therefore no further reduction in the loss limit for the plant property policy after this reaches the Estimated Maximum Loss figure. The cost is forecasted with increment of 8% per annum.
  - Taxes are based on the average increase for the past 8 years (Actual Budget 2006 – 2011, Revised Budget 2012, Original Budget 2013).
  - Miscellaneous assume a 5% pa increase for the rest of the costs in this category such as building tax, water & electricity retribution, vehicle registration & documentation (excluding \$50 for PKB updating each two years).
8. Recoveries & Allocations are forecasted based on the average increase for the past 8 years (Actual Budget 2006 – 2011, Revised Budget 2012, Original Budget 2013).

**5 YEARS BUSINESS PLAN 2013-2017**  
**OFFSITE MEDICAL COST**

**RETIREEs**

YEAR	POPULATION	CAPITATION (per person), Rp	FORECAST (Rp)	FORECAST (US\$)
2013	1779 prs	11,600,000.00	20,636,400,000.00	2,292,933.33
2014	1926 prs	11,600,000.00	22,341,600,000.00	2,482,400.00
2015	2085 prs	11,600,000.00	24,186,000,000.00	2,687,333.33
2016	2266 prs	13,033,760.00	29,534,500,160.00	3,281,611.13
2017	2446 prs	13,815,785.60	33,793,411,577.60	3,754,823.51

Note: Capitation is assumed not change from 2013 to 2015 and will be increase by 6% per annum for period of 2016-2017

**ACTIVE EMPLOYEES & FAMILIES**

YEAR	POPULATION	CAPITATION (per person), Rp	FORECAST (Rp)	FORECAST (US\$)
2013	4857 prs	6,106,220.00	29,657,910,540.00	3,295,323.39
2014	4857 prs	6,472,593.20	31,437,385,172.40	3,493,042.80
2015	4857 prs	6,860,948.79	33,323,628,282.74	3,702,625.36
2016	4857 prs	7,272,605.72	35,323,045,979.71	3,924,782.89
2017	4857 prs	7,708,962.06	37,442,428,738.49	4,160,269.86

Note:  
- Capitation increment due to inflation is assumed 6% per annum  
- No changes in population.

**MEDICAL REFERRAL**

YEAR	Forecast (US\$)
2013	384,320.00
2014	403,536.00
2015	423,712.80
2016	444,898.44
2017	467,143.36

Note: Assumed increment of 5% per annum

**EYE GLASSES**

YEAR	Forecast (US\$)
2013	217,740.00
2014	228,627.00
2015	240,058.35
2016	252,061.27
2017	264,664.33

Note: Assumed increment of 5% per annum

DESCRIPTION	YEAR				
	2013	2014	2015	2016	2017
Retirees	\$ 2,292,933.33	\$ 2,482,400.00	\$ 2,687,333.33	\$ 3,281,611.13	\$ 3,754,823.51
Active Employees & Families	\$ 3,295,323.39	\$ 3,493,042.80	\$ 3,702,625.36	\$ 3,924,782.89	\$ 4,160,269.86
Medical Referral	\$ 384,320.00	\$ 403,536.00	\$ 423,712.80	\$ 444,898.44	\$ 467,143.36
Eye Glasses	\$ 217,740.00	\$ 228,627.00	\$ 240,058.35	\$ 252,061.27	\$ 264,664.33
Overall	\$ 6,192,329.73	\$ 6,609,619.80	\$ 7,055,744.85	\$ 7,905,369.72	\$ 8,648,918.06

**5 YEARS BUSINESS PLAN 2013 - 2017**  
**PLANT MAINTENANCE**  
(In Thousands of US Dollar)

DESCRIPTION	2013	2014	2015	2016	2017	TOTAL 5 YEARS
<b>PLANT MAINTENANCE</b>						
<b>Shutdown Activities :</b>						
Scheduled - Train A Shutdown	-	-	-	-	-	-
Scheduled - Train B Shutdown	-	-	-	-	-	-
Scheduled - Train C Shutdown	-	-	-	700	-	700
Scheduled - Train D Shutdown	-	-	-	700	-	700
Scheduled - Train E Shutdown	-	700	-	-	-	700
Scheduled - Train F Shutdown	1,200	700	-	-	-	1,900
Scheduled - Train G Shutdown	700	-	-	-	700	1,400
Scheduled - Train H Shutdown	-	-	-	700	-	700
Scheduled - Utilities II Shutdown	100	-	-	-	-	100
Shutdown Plant 15/19/29/39 & 35	156	-	-	-	-	156
Shutdown Plant 19-F- 8,10,11 / 21-C-2F,G / 29 /35 / 36 /39	-	125	-	-	-	125
<b>Total Shutdown Activities</b>	<b>2,156</b>	<b>1,525</b>		<b>2,100</b>	<b>700</b>	<b>6,481</b>
<b>Maintenance Repairs :</b>						
Maintenance Repairs - Trains	1,420	1,600	1,600	1,600	1,600	7,820
Maintenance Repairs - Utilities	1,760	1,850	1,850	1,850	1,850	9,160
Maintenance Repairs - Storage & Loading	880	900	900	900	900	4,480
<b>CSMS Program</b>						
<b>Total Routine Maintenance Repair</b>	<b>4,060</b>	<b>4,350</b>	<b>4,350</b>	<b>4,350</b>	<b>4,350</b>	<b>21,460</b>
<b>Preventive Maintenance :</b>						
Preventive/Predictive Maintenance - Trains	310	350	350	350	350	1,710
Preventive/Predictive Maintenance - Utilities	313	325	325	325	325	1,613
Preventive/Predictive Maintenance - Storage & Loading	94	100	100	100	100	494
<b>Total Preventive/Predictive Maint</b>	<b>717</b>	<b>775</b>	<b>775</b>	<b>775</b>	<b>775</b>	<b>3,817</b>
<b>Total Routine Activities</b>	<b>6,933</b>	<b>6,650</b>	<b>5,125</b>	<b>7,225</b>	<b>5,825</b>	<b>31,758</b>
<b>Civil Works :</b>						
Repair on-line injection LNG Transfer line I/II insulation	300	300	300	300	300	1,500
Replace wall & roof at Power Generator Utilities Module-2	160	-	-	160	-	320
Repair roof at PSF Area	50	50	-	-	-	100
Painting Plant Area	760	760	760	760	760	3,800
Replace Insulation	380	380	380	380	380	1,900
Grass Cutting & Ground Keeping	450	450	450	450	450	2,250
Sandblast & Painting LNG Tank 24-D-XX	286	286	286	286	286	1,430
Repair Fire-Proofing	260	260	260	260	260	1,300
Sandblast & Paint LPG Tank - 17-D-XX (1 tank)	182	182	182	182	182	910
Repair broken concrete structure plant-32 Module-1	104	-	-	-	-	104
Replace Asbestos Roof & Wall Compressor Turbine Buildings	130	130	130	130	130	650

## 5 YEARS BUSINESS PLAN 2013 - 2017

### PLANT MAINTENANCE

(In Thousands of US Dollar)

DESCRIPTION	2013	2014	2015	2016	2017	TOTAL 5 YEARS
Biennial Routine Cleaning LNG Rundown & Transfer line	146	-	155	-	155	456
Paint Condensate, Fire Water, WTP Storage Tanks	52	55	55	55	55	272
Cleaning Wall & Dome Tanks : 24D-xx, 17D-xx	52	55	55	55	55	272
FRP CW Line Coating at Trains & Utilities	26	30	30	30	30	146
Repair Erosion Road from Plant 49 to KM-53	26	-	-	-	-	26
Repair Underground Sewer Line Utilities I & II	26	30	30	30	30	146
Process Train Concrete Foundation / Slab Survey & Repair	-	80	80	-	80	240
Cleaning / Restoration Rundown and Process Lines	-	80	80	80	80	320
<b>Total Civil Works</b>	<b>3,390</b>	<b>3,128</b>	<b>3,233</b>	<b>3,158</b>	<b>3,233</b>	<b>16,142</b>
<b>Mechanical Work</b>						
Replace cooler at 2E-5A/B & 4E-19/24/29AB of Train X	40	-	-	-	-	40
Replace 1 set (2 ea) 35-E-XX Intercoolers	250	250	-	-	-	500
Biennial Inspection of Boilers	416	460	416	460	416	2,168
Replace Expansion Bellows	148	-	148	148	-	444
Replace Cover, Channel Box Cooling Water Exch. (4-E-1, 4-E-2)	79	79	79	79	79	395
Replace Steam Trap	90	90	90	90	90	450
Replace Spring Support	90	90	90	90	90	450
Recertification PSV	85	85	85	85	85	425
Upgrade Plant 36 Acid plant at Module I & II	42	42	100	-	-	184
Repair/Replace Trash Rack at Module I	42	42	42	42	42	210
Repair/cleaning/replace demister pad at plant 21 (21-C-2A/H)	32	32	32	32	32	160
Replace corroded pipe/bolts/structure/ platforms Plant-32 Module II	-	100	200	200	-	500
Repair 1 set (2ea) 35-E-XX Intercoolers	-	-	50	50	50	150
<b>Total Mechanical Works</b>	<b>1,314</b>	<b>1,270</b>	<b>1,332</b>	<b>1,276</b>	<b>884</b>	<b>6,076</b>
<b>Machinery Equipment :</b>						
Incoming Inspection & Outside Repair Turbine Rotor & Nozzle Boxes Ex-4-KT-1/2/3	2,000	-	2,000	-	2,000	6,000
Repair Rotor Steam Turbine Gen. (ex 31-PT-XX)	250	250	250	250	500	1,500
Replace Mechanical Seals of 4K-1/2/3 leakage	200	200	200	200	200	1,000
Overhaul Condensing Steam Turbine Generator	400	400	400	400	400	2,000
Overhaul Non Condensing Steam Turbine Generator	350	350	350	350	350	1,750
Overhaul CW Pumps 32-G-XX (2 Units)	312	312	312	312	312	1,560
Overhaul Travelling Screens 32-T-xx (1 unit)	83	83	83	83	83	415
Repair rotor of small turbine & pump	63	63	63	63	63	315
Recondition Governor & Hydraulic Amplifier	83	83	83	83	83	415
Obsolete Utilities pump replacement	42	-	-	-	-	42
Inspect/Overhaul 17-K-1 Boil off Compressor	47	47	47	47	47	235

## 5 YEARS BUSINESS PLAN 2013 - 2017

### PLANT MAINTENANCE

(In Thousands of US Dollar)

DESCRIPTION	2013	2014	2015	2016	2017	TOTAL 5 YEARS
Overhaul Air Compressor 35-K-XX (1 Unit & replace bullgear)	170	170	170	170	170	850
Overhaul 16K-1	-	-	250	-	-	250
Workshop Machine Calibration	-	50	-	50	-	100
Outside repair Ex.2-KT-1 Rotor	-	50	-	50	50	150
Fire Pump Engine Replacement	-	-	-	-	-	-
Overhaul Turbine 4-KT-1/2/3	-	-	1,647	-	1,647	3,294
<b>Total Machinery Equipment</b>	<b>4,000</b>	<b>2,058</b>	<b>5,855</b>	<b>2,058</b>	<b>5,905</b>	<b>19,876</b>
<b>Heavy Equipment :</b>						
Repair roof Garage shop	50	-	-	-	-	50
Concrete slab garage area	40	-	-	-	-	40
Repainting Crane & Heavy Equipment	100	-	100	-	100	300
Replace / Repair Rolling Door 4 Unit (2 unit/year)	25	25	-	-	-	50
Normal Maintenance Repair - Mobile Equipment	362	362	362	362	362	1,810
General Overhaul Heavy Equip/Trucks, Vacuum Truck, Fire Truck	208	208	208	208	208	1,040
Preventive/Predictive Maintenance - Mobile Equipment	182	182	182	182	182	910
Gen. Overhaul Engine & Hydraulic Sys. (Manitowoc Crane)	156	156	156	156	156	780
General repair Engine Compressors	46	46	46	46	46	230
General repair Engine & Hydraulic Crane	50	50	50	50	50	250
Overhaul Dozer & Loader	50	50	50	50	50	250
Repaint Floor Work Shop: HE Shop (phase III of III)	52	-	-	-	-	52
Overhaul hydroblaster pump	-	-	60	-	-	60
<b>Total Heavy Equipment</b>	<b>1,321</b>	<b>1,079</b>	<b>1,214</b>	<b>1,054</b>	<b>1,154</b>	<b>5,822</b>
<b>Marine Boat Equipment</b>						
Docking Patrol Boat - Intermediate Survey	-	-	300	-	-	300
Replacement Fire Pump 43-T-XX	-	100	100	100	100	400
Replacement of Obsolete Boat Pump	-	50	50	50	50	200
Docking Tug Boat - Special Survey	400	1,200	1,200	-	-	2,800
Docking Mooring Boat - Special Survey	-	-	1,200	-	-	1,200
Docking Tug Boat - Intermediate Survey	-	-	-	500	750	1,250
Docking Mooring Boat - Intermediate Survey	-	-	-	-	450	450
Docking Patrol Boat - Special Survey	-	-	-	-	800	800
Annual Survey Tug Boats, Mooring Boats & Patrol Boats	50	45	38	60	15	208
<b>Total marine Boat Equipment</b>	<b>450</b>	<b>1,395</b>	<b>2,888</b>	<b>710</b>	<b>2,165</b>	<b>7,608</b>
<b>Total Machinery Heavy Equipment Works</b>	<b>5,771</b>	<b>4,532</b>	<b>9,957</b>	<b>3,822</b>	<b>9,224</b>	<b>33,306</b>
<b>Instrument Works :</b>						
Drier Valve replacement at Train A-D	200	-	-	-	-	200

**5 YEARS BUSINESS PLAN 2013 - 2017**  
**PLANT MAINTENANCE**  
(In Thousands of US Dollar)

DESCRIPTION	2013	2014	2015	2016	2017	TOTAL 5 YEARS
Processor Module CP345 at Utilities-1/2	250	-	-	-	-	250
Replace Actuator Fisher 667 Dock 2	150	-	-	-	-	150
Transmitter Replacement	150	150	150	150	150	750
Replacement WW505 at 8 FD-Fan Boiler Module II	100	100	75	-	-	275
Replace CRT DCS	75	75	75	75	75	375
Replace Igniter	60	-	-	-	-	60
Replace obsolete Massoneilan Positioner	-	25	25	25	25	100
Displacer Level Instrument	-	50	50	50	50	200
Replace Proximity Switches for ESD all Arm of Dock # 1 /2	-	25	50	-	-	75
Misc. Instrument, other	-	-	25	25	25	75
Replace Weir Backwash Valve CW# 11~ 62	-	30	-	-	-	30
Replace ITT Barton Backwash Valve CW# 11~ 62	-	30	-	-	-	30
Level Glass Boiler #21/22	-	40	-	-	-	40
Replace Lock Up Relay Utilities I & Train Mod. I	-	25	25	-	-	50
DCS Maintenance Contract	-	60	60	60	60	240
G/C Maintenance Contract	-	200	200	200	200	800
Upgrade Tri Report Yokogawa	-	-	100	-	-	100
Replace Royal Cryogenic Valve's Actuator	-	-	200	200	200	600
Upgrade Simulator ESD/EDP Honeywell	-	-	-	100	-	-
<b>Total Instrument Works</b>	<b>985</b>	<b>810</b>	<b>1,035</b>	<b>885</b>	<b>785</b>	<b>4,500</b>
<b>Electrical Works :</b>						
Replace annunciator utilities area (4 ea)	120	-	-	-	-	120
Replace Coil Condenser	75	-	-	-	-	75
Replace A/C window class I	75	75	75	75	75	375
Replacement of Fire Pump Controller for 49-GM-9/10 and 49-GE-11	75	-	-	-	-	75
Overhaul CWP Motors 32-GM-XX	328	328	328	328	328	1,640
Improvement Chlorination Plant (32V-5/8 A/B/C)	208	-	-	-	-	208
Replace Power Cable Feeder	186	186	186	186	186	930
Replace Chloropac Chlorinating Cells	191	191	191	191	191	955
Overhaul Power Generators	150	150	150	150	150	750
Replace Battery UPS unit	85	85	85	85	85	425
Replace Air Condenser HVAC	74	74	74	74	74	370
Overhaul Power supply Unit 32-V-3A/B	80	-	-	-	-	80
Overhaul Medium Voltage Motor (4.16 KV Motors)	73	73	73	73	73	365
Replace panel Water Well	69	-	-	-	-	69
Overhaul UPS	40	40	40	40	40	200
Replace Daiki Chlorinating Cells	-	-	310	310	310	930

## 5 YEARS BUSINESS PLAN 2013 - 2017

### PLANT MAINTENANCE

(In Thousands of US Dollar)

DESCRIPTION	2013	2014	2015	2016	2017	TOTAL 5 YEARS
Replace HV Transformer 148 PT-13-10	-	80	80	80	80	320
Overhaul OHC in Workshop	-	50	-	-	-	50
Contactor & Transformer Replacement	-	100	100	100	100	400
Replace control Fire Engine	-	75	75	75	75	300
Recondition OHC in CWI/Trains	-	-	50	50	50	150
<b>Total Electrical Works</b>	<b>1,829</b>	<b>1,507</b>	<b>1,817</b>	<b>1,817</b>	<b>1,817</b>	<b>8,787</b>
Various Non-AFE Projects (Tr. A - H, UtI, I & II, S/L)	93	97	101	105	109	504
<b>Total Other Items</b>	<b>93</b>	<b>97</b>	<b>101</b>	<b>105</b>	<b>109</b>	<b>504</b>
<b>Total Plant</b>	<b>13,382</b>	<b>11,344</b>	<b>17,474</b>	<b>11,063</b>	<b>16,052</b>	<b>69,314</b>
<b>SUPPORT FACILITIES MAINTENANCE</b>						-
<b>Shipping &amp; Harbor</b>						-
Replace Range Light	120	125	130	135	140	650
Normal Maintenance Repair Shipping & Harbor	187	194	202	210	219	1,013
Repair Navigation Aids	240	250	260	270	281	1,300
Repair Mooring Boat Jetty	50	52	54	56	58	271
<b>Total Marine Sections</b>	<b>597</b>	<b>621</b>	<b>646</b>	<b>672</b>	<b>698</b>	<b>3,234</b>
<b>Maintenance Sections:</b>						-
Grass Cutting and Ground Keeping PSF Area	125	130	135	141	146	677
Normal Maintenance Building Repair at Zone II	78	81	84	88	91	422
Normal Maintenance Building - Warehouse	52	52	52	52	52	260
Repair Roof of Maintenance Section Shop	32	33	35	36	37	173
Repaint Floor of Maintenance Section Shop	53	55	57	60	62	287
Workshop Machine Calibration	32	33	35	36	37	173
Preventive Maintenance - PSF Equipment	26	27	28	29	30	141
CSMS	120	125	130	135	140	650
<b>Total Maintenance Sections</b>	<b>518</b>	<b>537</b>	<b>556</b>	<b>576</b>	<b>597</b>	<b>2,784</b>
<b>SHE-Q:</b>						-
Normal Maintenance Repair - SHE-Q	130	135	141	146	152	704
Incinerator Multipurpose Maintenance	26	27	28	29	30	141
<b>Total SHE-Q</b>	<b>156</b>	<b>162</b>	<b>169</b>	<b>175</b>	<b>182</b>	<b>845</b>
<b>Facilities Engineering &amp; Project Engineering</b>						-
New Permanent Line Facilities For Train E/F/G/H 1C-5 Washing Activities	22	23	24	25	26	119
Circulation Line System for Fire Water Test	20	21	22	22	23	108
Normal PM & Maintenance Repair - Laboratory	52	54	56	58	61	282
<b>Total Facilities &amp; Project Engineering</b>	<b>94</b>	<b>98</b>	<b>102</b>	<b>106</b>	<b>110</b>	<b>509</b>
<b>Total Support Facilities Maintenance</b>	<b>1,365</b>	<b>1,418</b>	<b>1,472</b>	<b>1,529</b>	<b>1,588</b>	<b>7,372</b>
<b>Total Plant Maintenance</b>	<b>21,680</b>	<b>19,411</b>	<b>24,071</b>	<b>19,817</b>	<b>23,465</b>	<b>108,444</b>

**5 YEARS BUSINESS PLAN 2013 - 2017**  
**PLANT MAINTENANCE**  
(In Thousands of US Dollar)

DESCRIPTION	2013	2014	2015	2016	2017	TOTAL 5 YEARS
<b>SPECIAL PROGRAMS</b>						
<b>Reliability Program:</b>						
Overhaul Loading Arms LD#1 (>10 years)	5,500	-	-	-	-	5,500
LNG Plant Reliability Modelling	200	200	200	200	-	800
Overhead Crane Assessment and Repair (All Area)	150	-	-	-	150	300
RCM and RAM Analysis Plant 31 and 32	150	-	-	-	-	150
MI Document Update	100	100	100	-	-	300
Maintenance Procedure Review (All Craft)	100	100	-	-	-	200
Replace fabric expansion joint of flue gas duct Boiler Module I	50	50	50	50	50	250
Reliability Workshop	50	50	50	50	50	250
Reliability Dashboard	50	-	-	-	-	50
Upgrade Mechanical Governor for 31-PT-2/3/4	50	-	-	-	-	50
1 Unit of Gland Steam Condenser	30	30	30	30	30	150
1 Unit of Four way Valves lube oil system of Trains 4K-1/2/3 (CS to SS)	30	30	30	30	30	150
Install non metallic pipe shoe Plant 38	30	30	30	30	30	150
Upgrade Controller & Gear Box replacement Balancing machine	400	-	-	-	-	400
Corrosion and Painting Survey in All Plant (reliability Program)	250	-	-	250	250	750
Cap & Plugs at all location (Safety issue, reliability Program)	50	-	-	-	-	50
Repair Conductivity meter	52	-	-	-	-	52
Inspect FRP underground CW line in Train area (reliability Program)	100	100	100	100	100	500
Overhaul Loading Arms LD#2 (>10 years)	-	5,500	-	-	-	5,500
Oil accumulator retrofitting in Train area	-	100	100	100	100	400
CW Intake Sediment Survey Train	-	45	45	45	45	180
Ferrit Survey	-	50	-	-	-	50
Pearlite Survey	-	-	60	60	-	120
Expansion Joint Survey	-	50	-	-	50	100
RUL Train F (Additional Program)	-	-	-	-	-	-
Overhaul LPG Loading Arms LD#2 (>10 years)	-	-	4,000	-	-	4,000
Steam Trap Replacement	-	-	-	-	-	-
<b>Total Reliability Program</b>	<b>7,342</b>	<b>6,435</b>	<b>4,795</b>	<b>1,095</b>	<b>735</b>	<b>20,402</b>
<b>Plant Inspection:</b>						
4 years Spring Support surveys all Plants	33	-	-	33	-	66
NDT & Radiography Examination	115	115	115	115	115	575
Inspectors for Shutdown Train	70	47	29	47	47	240
SKPP Fisik PV & HE	75	-	75	-	75	225
Eddy Current test	67	134	67	134	134	536
SKPP Fisik - Cranes (All Crane, included Gondola & Lift)	37	-	37	-	37	111
8 Years Blow off Drum Inspection Modul II	-	40	40	40	-	120

## 5 YEARS BUSINESS PLAN 2013 - 2017

### PLANT MAINTENANCE

(In Thousands of US Dollar)

DESCRIPTION	2013	2014	2015	2016	2017	TOTAL 5 YEARS
8 Years Blow off Drum Inspection Modul I	-	40	40	40	-	120
4 Years Surface Condensor Inspect Mdl I	-	35	35	-	-	70
4 Years Surface Condensor Inspec Mdl II	-	35	35	35	35	140
Waterwell inspection	-	-	-	40	-	40
Fuelk Gas KOD Inspection	-	-	-	-	45	45
<b>Total Plant Inspection Program</b>	<b>397</b>	<b>446</b>	<b>473</b>	<b>484</b>	<b>488</b>	<b>2,288</b>
<b>Plant Equipment Certification:</b>						
SKPI all Plant	128	-	-	-	-	128
SKPP Audit & Fisik Rotating all plant	121	-	-	121	-	242
SKPP Audit PV & HE	87	-	87	-	87	261
Biennial Boiler Shutdown	71	71	71	71	71	355
SKPP Audit + Fisik Electric	50	-	50	50	-	150
Migas Inspector for PSV	26	26	26	26	26	130
SKPP Audit Crane All Area	30	-	30	-	30	90
Recertification Tug Boats, Mooring Boat, Patrol Boat(New), New Tug Boat, Class Survey BKI	30	48	60	60	60	258
<b>Total Plant Equipment Certification Program</b>	<b>543</b>	<b>145</b>	<b>324</b>	<b>328</b>	<b>274</b>	<b>1,614</b>
<b>Total Special Work Program</b>	<b>8,282</b>	<b>7,026</b>	<b>5,692</b>	<b>1,907</b>	<b>1,497</b>	<b>24,304</b>
<b>Grand Total Work Program</b>	<b>29,962</b>	<b>26,437</b>	<b>29,663</b>	<b>21,724</b>	<b>24,962</b>	<b>132,748</b>

## **5 YEARS BUSINESS PLAN 2013-2017**

### **TIER I, II & III CAPITAL PROJECTS**

(In Thousands of US Dollar)

#### **OVERALL SUMMARY**

<b>TIER</b>	<b>Category</b>	<b>Revised</b>	<b>Forecast</b>	<b>Forecast</b>	<b>Forecast</b>	<b>Forecast</b>	<b>Forecast</b>
		<b>Budget</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
<b>I</b>	Expenditures						
	- Identified Projects	90	20	161	-	-	-
	- Identified Purchase Items	3,032	3,626	-	-	-	-
	- Unidentified Items	-	-	2,839	3,000	3,000	3,000
	<b>Total Tier-I</b>	<b>3,122</b>	<b>3,646</b>	<b>3,000</b>	<b>3,000</b>	<b>3,000</b>	<b>3,000</b>
<b>II</b>	Expenditures						
	- Carry Over Projects	-	-	-	-	-	-
	- Carry Forward Projects	1,268	4,589	2,188	800	600	250
	- New Projects	1,122	985	2,050	600	250	1,500
	<b>Total Tier-II</b>	<b>2,390</b>	<b>5,574</b>	<b>4,238</b>	<b>1,400</b>	<b>850</b>	<b>1,750</b>
<b>III</b>	Expenditures						
	- Carry Over Projects	1,012	-	-	-	-	-
	- Carry Forward Projects	13,314	7,238	6,410	12,800	11,400	3,000
	- New Projects	20	553	5,120	7,000	7,000	7,000
	<b>Total Tier-III</b>	<b>14,346</b>	<b>7,791</b>	<b>11,530</b>	<b>19,800</b>	<b>18,400</b>	<b>10,000</b>
<b>TOTAL TIER I, II &amp; III</b>		<b>19,858</b>	<b>17,011</b>	<b>18,768</b>	<b>24,200</b>	<b>22,250</b>	<b>14,750</b>

## 5 YEARS BUSINESS PLAN 2013 - 2017

### TIER I CAPITAL PROJECTS

(In Thousands of US Dollar)

#### IDENTIFIED PROJECTS

No.	AFE	PROJECT TITLE	2012	2013	2014	2015	2016	2017	TOTAL 5 YEARS
<b>TIER I 2012 PROJECTS</b>									
1.	41112101	ESD-1 Proximity Switch for LPG Dock-2 Additional		90					
<b>Total TIER I 2012 Projects</b>									
<b>TOTAL 2013 TIER I</b>									
1.	410131XX	Operator Shelter Relocation at Fuel Pump Station		20					20
<b>Total TIER I 2013 Projects</b>									
<b>TOTAL 2014 TIER I</b>									
1.	41014XXX	Seal Oil Level Control Upgrade to DCS from Local Loop Type			50				50
2.	41014XXX	Integrating Load Sharing Between Utilities-I and Utilities-II			50				50
3.	41014XXX	Train G 4LV-6 Improvement			11				11
4.	41014XXX	Improve Storage Capacity, Access Speed, and Web User Client PIMS Exaquantum			50				50
5.	41014XXX	Unidentified Projects			1,339				1,339
<b>Total TIER I 2014 Projects</b>									
<b>TOTAL 2015 TIER I</b>									
1.	41015XXX	Unidentified Projects			1,500				1,500
<b>Total TIER I 2015 Projects</b>									
<b>TOTAL 2016 TIER I</b>									
1.	41016XXX	Unidentified Projects			1,500				1,500
<b>Total TIER I 2016 Projects</b>									
<b>TOTAL 2017 TIER I</b>									
1.	41017XXX	Unidentified Projects			1,500				1,500
<b>Total TIER I 2017 Projects</b>									
<b>TOTAL TIER I IDENTIFIED</b>									
			90	20	161	-	-	-	181
<b>TOTAL TIER I PURCHASES</b>			3,032	3,626	-	1,500	1,500	1,500	8,126
<b>TOTAL TIER I UNIDENTIFIED</b>			-	-	1,339	1,500	1,500	1,500	5,839
<b>TOTAL OVERALL TIER I 2012-2017</b>			3,122	3,646	1,500	3,000	3,000	3,000	14,146

**5 YEARS BUSINESS PLAN 2013 - 2017**

**TIER II CAPITAL PROJECTS**

(In Thousands of US Dollar)

**IDENTIFIED PROJECTS**

No.	AFE	PROJECT TITLE	2012	2013	2014	2015	2016	2017	TOTAL 5 YEARS
<b>TIER II 2011 CARRY-FORWARD PROJECTS</b>									
1.	42011202	Fire Detection System for 4K Train E-H	272						-
2.	42011203	Fire Detection System for 4K Train C-D	202						-
3.	42011204	Train C-H Operator Shelter Relocation	39						-
4.	42011205	Disaster Recovery Center (DRC) Facilities for ERP Oracle	84						-
5.	42011206	Protective Relay Replacement of Generators, Feeders and Motors	371						-
6.	42011207	Liquid Eductor Application at DRS Plant-36	300						-
<b>Total TIER II 2011 Carry-Forward Projects</b>							1,268		
<b>TIER II 2012 NEW PROJECTS</b>									
1.	42012201	WW501 at 31-PG-10/13/14 Replacement	50	575					575
2.	42012202	Fire Detection System at Guest House, Messhall and Apartment Building	33	337					337
3.	42012203	Fire Protection and Detection System in Transmitter and PABX Room at Communication Building	25	175					175
4.	42012204	35K-3/4/5/6 Air Compressor Control System Replacement at Utilities II	10	500					500
5.	42012205	Main Warehouse Roof Replacement Phase II	10	350					350
6.	42012206	Roof & Concrete Deck Improvement at Al-Kautsar Mosque	30	220					220
7.	42012207	Retrofit Obsolete Cordless System at Dock-2 and Install Cordless System at Dock-1	10	410					410
8.	42012208	Yokogawa Centum CS HMI Retrofit at Utilities II	56	844					844
9.	42012209	HMI and SOE Honeywell Plantscape Replacement at Trains-C/D/E	41	224					224
10.	42012210	Fire Water Pumps Reliability Improvement	69	431					431
11.	42012211	Fire Protection System at Fuel Gas KOD 31C-23/28	10	190					190
12.	42012212	PT. Badak Land Certification	778	333					333
<b>Total TIER II 2012 Carry-Forward Projects</b>							1,122	4,589	4,589
<b>TIER II 2013 NEW PROJECTS</b>									
1.	420132XX	Emergency Stair at SD Vidatra	25	18					43
2.	420132XX	MP-LP Steam Letdown Station at Train G & H Utilities II	15	125					140
3.	420132XX	Cable 48FDR-18/28 Additional	40	330					370
4.	420132XX	UPS 37-PU-1 Replacement at Radio Room	20	150					170
6.	420132XX	Additional Pre-Heater in Regeneration Gas Circuit at Train F	195	455					650
11.	420132XX	Radial Drill Machine (1 unit) Replacement	200	150					350
12.	420132XX	VTMS 7200 (35K-3 & 15K-1) Replacement	50	150					200
13.	420132XX	Triple Agent Fire Truck With Mercedes Benz	400	550					950
14.	420132XX	Replacement of FAMS for PSF & Community Area	20	130					150
15.	420132XX	Replacement of Dry Chemical in 24D-6	20	130					150
<b>Total TIER II 2013 New Projects</b>							985	2,188	3,173
<b>TIER II 2014 NEW PROJECTS</b>									
1.	420142XX	Town Center Culvert Improvement	290	400					690
2.	420142XX	HVAC Module I Replacement	500						500
3.	420142XX	Refurbish Existing MCC 4160 & 480 Volt 24PS-18/28	500						500
4.	420142XX	Evaluate online recertification PSV's in Utilities	550						550
5.	420142XX	24G LNG Recirculation Pump Spare (Reverse Engineering)	100	200					300
6.	420142XX	Install Online Monitoring for Transformer 34.5 kV and others larger transformer	50	150					200
7.	420142XX	Install Online Monitoring for Battery	50	150					200
8.	420142XX	Replacement Disconnecting Switch and Transformer in Community Area	300	300					600
<b>Total TIER II 2014 New Projects</b>							2,050	800	2,850

**5 YEARS BUSINESS PLAN 2013 - 2017**

**TIER II CAPITAL PROJECTS**

(In Thousands of US Dollar)

**IDENTIFIED PROJECTS**

No.	AFE	PROJECT TITLE	2012	2013	2014	2015	2016	2017	TOTAL 5 YEARS
<b>TIER II 2015 NEW PROJECT</b>									
1.	420152XX	HVAC Module II Replacement				500			500
2.	420152XX	Install Network Communication for Relay Digital			50	150			200
3.	420152XX	Upgrade ESD/EDP Regent Plus Train G & P16			50	450			500
<b>Total TIER II 2015 New Projects</b>					600	600			1,200
<b>TIER II 2016 NEW PROJECT</b>									
1.	420162XX	Replacement of Obsolete Generator and Large Transformer (34.5 kV) Protection Relay				250	250		500
<b>Total TIER II 2016 New Projects</b>					250	250			500
<b>TIER II 2017 NEW PROJECT</b>									
1.	420172XX	Unidentified Projects					1,500	1,500	
<b>Total TIER II 2017 New Projects</b>					1,500	1,500			1,500
<b>TOTAL TIER II CARRY OVER PROJECTS</b>									
<b>TOTAL TIER II CARRY FORWARD PROJECTS</b>									
<b>TOTAL TIER II NEW PROJECTS</b>									
<b>TOTAL OVERALL TIER II 2012 -2017</b>			2,390	5,574	4,238	1,400	850	1,750	13,812

## 5 YEARS BUSINESS PLAN 2013 - 2017

### TIER III CAPITAL & SPECIAL PROJECTS

(In Thousands of US Dollar)

#### IDENTIFIED PROJECTS

No.	AFE	PROJECT TITLE	2012	2013	2014	2015	2016	2017	TOTAL 5 YEARS
<b>TIER III 2009 CARRY-OVER PROJECTS</b>									
1.	43009201	New Water Well Development		1,012					
		<b>Total TIER III 2009 Carry-Forward Projects</b>		<b>1,012</b>					
<b>TIER III 2010 CARRY-FORWARD PROJECTS</b>									
1.	43010202	Enterprise Resource Planning (ERP) Hardware and Software Replacement	2,247						
2.	43010203	Community Potable & Fire Water Lines Improvement	1,784						
3.	43010204	Module I & II Cooling Water Area Reliability Improvement	1,537	2,303					2,303
4.	43010205	Black Out Start Up Unit Replacement	6,519						
		<b>Total TIER III 2010 Carry-Forward Projects</b>	<b>12,087</b>	<b>2,303</b>					<b>2,303</b>
<b>TIER III 2011 CARRY-FORWARD PROJECTS</b>									
1.	43011201	Train F DCS Centum XL Replacement	735	2,485	1,700				4,185
2.	43011202	Flare Gas Recovery (Phase I)	492	1,450	550				2,000
		<b>Total TIER III 2011 Carry-Forward Projects</b>	<b>1,227</b>	<b>3,935</b>	<b>2,250</b>				<b>6,185</b>
<b>TIER III 2012 CARRY-FORWARD PROJECTS</b>									
1.	43012201	ABB STAL Gas Turbine Control System PG-15 Retrofit	20	1,000	700				1,700
		<b>Total TIER III 2012 Carry-Forward Projects</b>	<b>20</b>	<b>1,000</b>	<b>700</b>				<b>1,700</b>
<b>TIER III 2013 NEW PROJECT</b>									
1.	43013XXX	Community Water Losses - PC Area Improvement Phase II		433	580				1,013
2.	43013XXX	Portable Water Quality Improvement at Storage Loading Area		20	1,080				1,100
3.	43013XXX	Implementation of RO - EDI		100	1,800				1,900
		<b>Total TIER III 2013 New Projects</b>		<b>553</b>	<b>3,460</b>				<b>4,013</b>
<b>TIER III 2014 NEW PROJECTS</b>									
1.	43014XXX	Flare Gas Recovery Project (Phase II)		5,000	7,500	7,500			20,000
2.	43014XXX	Upgrading DCS Train G/H		50	3,500	3,500	3,000		10,050
3.	43014XXX	Firewater Header Line Reliability for Plant 21		20	900	300			1,220
4.	43014XXX	HVAC Evaluation for All Services Area		50	900	100			1,050
		<b>Total TIER III 2014 New Projects</b>		<b>5,120</b>	<b>12,800</b>	<b>11,400</b>	<b>3,000</b>		<b>32,320</b>
<b>TIER III 2015 NEW PROJECTS</b>									
1.	43015XXX	Unidentified Projects			7,000				7,000
		<b>Total Tier III 2015 New Projects</b>			<b>7,000</b>				<b>7,000</b>
<b>TIER III 2016 NEW PROJECTS</b>									
1.	43016XXX	Unidentified Projects				7,000			7,000
		<b>Total Tier III 2016 New Projects</b>				<b>7,000</b>			<b>7,000</b>
<b>TIER III 2017 NEW PROJECTS</b>									
1.	43017XXX	Unidentified Projects				7,000			7,000
		<b>Total Tier III 2017 New Projects</b>				<b>7,000</b>			<b>7,000</b>

**5 YEARS BUSINESS PLAN 2013 - 2017**  
**TIER III CAPITAL & SPECIAL PROJECTS**  
 (In Thousands of US Dollar)  
**IDENTIFIED PROJECTS**

No.	AFE	PROJECT TITLE	2012	2013	2014	2015	2016	2017	TOTAL 5 YEARS
		<b>TOTAL TIER III CARRY-OVER PROJECTS</b>	1,012						
		<b>TOTAL TIER III CARRY FORWARD PROJECTS</b>	13,314	7,238	6,410	12,800	11,400	3,000	40,848
		<b>TOTAL TIER III NEW PROJECTS</b>	20	553	5,120	7,000	7,000	7,000	26,673
		<b>TOTAL OVERALL TIER III 2012 -2017</b>	<b>14,346</b>	<b>7,791</b>	<b>11,530</b>	<b>19,800</b>	<b>18,400</b>	<b>10,000</b>	<b>67,521</b>

## 5 YEARS BUSINESS PLAN 2013 - 2017

### TIER I/II CAPITAL PROJECTS

(In Thousands of US Dollar)

#### AFE TIER I/II PURCHASE

No.	AFE	PROJECT TITLE						TOTAL 5 YEARS			
			2012	2013	2014	2015	2016				
<b>YEAR 2012</b>											
<b>&gt; US\$ 50,000.-</b>											
1.	41112102	Speed Camera System (1 Set) Additional	380					-			
2.	41112103	KBOX System Management Appliance Additional	82					-			
3.	41112104	High Capacity Foam Water Monitor Compl. With Support Equipment Additional	950					-			
4.	41112201	Hydraulic Crane 15 ton Replacement	400					-			
5.	41112202	HVOF Machine Replacement	120					-			
6.	41112203	Overhead Crane 4 Ton Replacement	80					-			
7.	41112204	Portable Radial Gasket Facing Machine Replacement	143					-			
8.	41112205	Lube Oil Centrifuge Replacement	157					-			
9.	41112206	Hydraulic Rolling Machine Replacement	300					-			
10.	41112207	Traffic Light (1 set) Replacement	67					-			
11.	41112105	New 4 wheel Drive Ambulance	50					-			
<b>&lt; US\$ 50,000.-</b>											
12.	41012101	Laser Methane Mini For Gas Detection Additional	25					-			
13.	41012102	Scanner image FORMULA DR-7550C (1 unit) Additional	8					-			
14.	41012103	Hydraulic / Pneumatic Torque Wrench Additional	25					-			
15.	41012104	Portable Combustion Analyzer Additional	10					-			
16.	41012105	Emision Exhaust Combustion Detector Additional	20					-			
16.	41012201	UV/VIS Spectrofotometer Replacement	20					-			
17.	41012202	Radiation Monitoring Comply with Government Regulation Replacement	10					-			
18.	41012203	Impact Wrench (4 ea) Replacement	14					-			
19.	41012204	Hose Cramp Machine Replacement	27					-			
20.	41012205	Lift Forklift (1 init) Replacement	36					-			
21.	41012206	Vacuum Tester (Vacuum Circuit Breaker 4.16kv) Replacement	20					-			
22.	41012207	Rapid Tester for Lead Acid Batteries Replacement	5					-			
23.	41012208	Printer Data Card (1 set) Replacement	13					-			
24.	41012209	Treadmill (2 unit) Replacement	11					-			
25.	41012210	Heavy Duty Machine ICE Cream Soft SERVe Freezer For Messhall Replacement	13					-			
26.	41012211	Heavy Duty Electric Tilting Skillers For Messhall Replacement	21					-			
27.	41012212	Heavy Duty Electric Boiling Pans For Messhall Replacement	8					-			
28.	41012213	Heavy Duty Electric Fryers For Messhall Replacement	17					-			
<b>Sub Total Purchase 2012</b>			3,032								
<b>YEAR 2013</b>											
<b>&gt; US\$ 50,000.-</b>											
1.	411131XX	Excavator Mounted Vibrator Additional	75					75			
2.	411131XX	Gondola Suspended Scaffold (1 unit) Additional	122					122			
3.	411132XX	Multi Operator Welding Machine (1 unit) Replacement	50					50			
4.	411132XX	Insulation Diagnostic Tester (1 unit) Replacement	150					150			
5.	411132XX	Magnetic Particle Inspection Equipment (1 unit) Replacement	200					200			
6.	411132XX	Compact Tractor (1 unit) Replacement	125					125			
7.	411132XX	Continuous Emission Monitoring Replacement	150					150			

**5 YEARS BUSINESS PLAN 2013 - 2017**

**TIER I/II CAPITAL PROJECTS**

(In Thousands of US Dollar)

**AFE TIER I/II PURCHASE**

No.	AFE	PROJECT TITLE	2012	2013	2014	2015	2016	2017	<b>TOTAL 5 YEARS</b>
8.	411132XX	Speed Controller Train G Refrigerant Compressors (5 Units) Replacement		150					150
9.	411132XX	Boiler Controller 31F-xx, Phase 1 of 4 Replacement		100					100
10.	411132XX	Gas Chromatograph (3 units) Replacement		390					390
11.	411132XX	Security Master Plant SMP (4 units) Replacement		50					50
12.	411132XX	Marine & Aviation Radio (1 set) Replacement		50					50
13.	411132XX	Integrated Monitoring Communication System of HMCS-EOCC-MST		100					100
14.	411132XX	Engine Speed Boat (6 units) replacement		111					111
15.	411132XX	Pick Up 4x2 Standar (3 units) Replacement		63					63
16.	411132XX	Station Wagon Diesel (6 units) Replacement		164					164
17.	411132XX	Minibus 10 seat for Shuttle Airport (2 units) Replacement		70					70
18.	411132XX	Micro Bus AC (3 units) Replacement		432					432
19.	411132XX	Big Bus AC (4 units) Replacement		658					658
20.	411132XX	Ground Power Electric Airport (1 unit) Replacement		92					92
		<b>&lt; US\$ 50,000.-</b>		325					
		<b>Sub Total Purchase 2013</b>		3,626					3,626
		<b>YEAR 2014</b>							
		<b>&gt; US\$ 50,000.-</b>							
1.	411142XX	Unidentified Purchase			1,500				1,500
		<b>YEAR 2015</b>							
1.	411152XX	Unidentified Purchase			1,500				1,500
		<b>YEAR 2016</b>							
1.	411162XX	Unidentified Purchase			1,500				1,500
		<b>YEAR 2017</b>							
1.	411172XX	Unidentified Purchase			1,500				1,500
		<b>TOTAL TIER I (PURCHASE ONLY) 2012-2017</b>	<b>3,032</b>	<b>3,626</b>	<b>1,500</b>	<b>1,500</b>	<b>1,500</b>	<b>1,500</b>	<b>9,626</b>

## **ATTACHMENT – 2**

### **FEED GAS FORECAST**

Part of Minutes of Meeting (MoM) – Producers Meeting in November 2012

## Part of Minutes of Meeting (MoM) – Producers Meeting in November 2012

### PT BADAK INLET

	Rate	CO2	N2	C1	C2	C3	i-C4	n-C4	i-C5	n-C5	C6+	H20
2013	1,567	6.34	0.08	84.42	4.12	2.89	0.60	0.67	0.30	0.19	0.38	0.00
2014	1,742	5.97	0.09	85.03	3.97	2.83	0.59	0.67	0.29	0.19	0.37	0.00
2015	1,848	5.68	0.09	85.49	3.93	2.77	0.58	0.65	0.28	0.18	0.35	0.00
2016	2,151	4.78	0.09	87.22	3.62	2.49	0.52	0.58	0.25	0.16	0.30	0.00
2017	1,984	4.39	0.08	87.89	3.54	2.39	0.50	0.56	0.24	0.16	0.27	0.00

### VICO

	Rate	CO2	N2	C1	C2	C3	i-C4	n-C4	i-C5	n-C5	C6+	H20
2013	370	14.05	0.10	75.81	4.65	3.02	0.58	0.74	0.27	0.18	0.60	0.00
2014	376	13.47	0.09	76.28	4.70	3.06	0.59	0.74	0.28	0.19	0.60	0.00
2015	375	13.29	0.09	76.36	4.80	3.08	0.59	0.75	0.27	0.19	0.58	0.00
2016	330	13.11	0.08	76.47	5.00	3.05	0.60	0.72	0.26	0.19	0.54	0.00
2017	273	12.39	0.06	76.92	5.45	3.02	0.62	0.66	0.24	0.19	0.43	0.00

### TOTAL

	Rate	CO2	N2	C1	C2	C3	i-C4	n-C4	i-C5	n-C5	C6+	H20
2013	1,480	4.52	0.08	86.20	4.04	2.99	0.63	0.68	0.32	0.20	0.34	0.00
2014	1,616	4.50	0.09	86.32	3.98	2.96	0.63	0.68	0.32	0.20	0.33	0.00
2015	1,609	4.50	0.09	86.33	3.98	2.95	0.63	0.68	0.32	0.20	0.33	0.00
2016	1,559	4.47	0.09	86.40	3.95	2.94	0.63	0.68	0.31	0.20	0.32	0.00
2017	1,388	4.45	0.09	86.47	3.93	2.93	0.62	0.68	0.31	0.20	0.32	0.00

### CHEVRON

	Rate	CO2	N2	C1	C2	C3	i-C4	n-C4	i-C5	n-C5	C6+	H20
2013	94	5.87	0.03	87.52	4.11	1.46	0.26	0.38	0.14	0.07	0.15	0.00
2014	90	5.71	0.03	87.23	4.05	1.76	0.33	0.48	0.17	0.09	0.16	0.00
2015	79	5.39	0.03	87.74	4.09	1.63	0.30	0.43	0.16	0.08	0.15	0.00
2016	60	4.90	0.03	88.51	4.16	1.44	0.26	0.37	0.14	0.07	0.12	0.00
2017	51	4.39	0.04	89.18	4.21	1.33	0.23	0.34	0.12	0.06	0.10	0.00

### CHEVRON - DEEP WATER

	Rate	CO2	N2	C1	C2	C3	i-C4	n-C4	i-C5	n-C5	C6+	H20
2013	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2015	51	2.05	0.19	88.18	5.06	3.04	0.50	0.62	0.14	0.10	0.13	0.00
2016	101	2.07	0.19	88.30	5.11	3.01	0.47	0.57	0.12	0.08	0.08	0.00
2017	171	1.65	0.14	91.34	3.65	2.15	0.35	0.44	0.11	0.07	0.11	0.00

### PEARL OIL - SEBUKU

	Rate	CO2	N2	C1	C2	C3	i-C4	n-C4	i-C5	n-C5	C6+	H20
2013	20	0.70	0.20	97.60	0.20	0.40	0.20	0.20	0.10	0.10	0.30	0.00
2014	80	0.70	0.20	97.60	0.20	0.40	0.20	0.20	0.10	0.10	0.30	0.00
2015	82	0.70	0.20	97.60	0.20	0.40	0.20	0.20	0.10	0.10	0.30	0.00
2016	82	0.70	0.20	97.60	0.20	0.40	0.20	0.20	0.10	0.10	0.30	0.00
2017	82	0.70	0.20	97.60	0.20	0.40	0.20	0.20	0.10	0.10	0.30	0.00

### ENI - JANGKRIK

	Rate	CO2	N2	C1	C2	C3	i-C4	n-C4	i-C5	n-C5	C6+	H20
2013	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2015	72	0.99	0.04	95.85	1.62	0.86	0.18	0.23	0.08	0.06	0.09	0.00
2016	439	0.99	0.04	95.85	1.62	0.86	0.18	0.23	0.08	0.06	0.09	0.00
2017	439	0.99	0.04	95.85	1.62	0.86	0.18	0.23	0.08	0.06	0.09	0.00

## **ATTACHMENT – 3**

### **PROCESSING CAPACITY AND TRAIN OPERATING SCHEME**

1. Part of Process & SHE Engineering Memo 213/BP31/2012-114 dated 26 July 2012 entitled “MAXIMUM FEED GAS PROCESSING CAPACITY”
2. Part of Process & SHE Engineering Memo 269/BP31/2012-252 dated 10 September 2012 entitled “REPORT OF TRAIN H MAXIMUM PERFORMANCE TEST”
3. Determining Trains Operating Scheme

**Part of Process & SHE Engineering Memo 213/BP31/2012-114**

Gas Pressure, kg/cm <sup>2</sup> g	LNG Production Capacity, m <sup>3</sup> /hr							
	A*	B	C*	D*	E	F	G*	H
47	708	713	707	717	764	770	760	855
46	699	705	698	708	756	762	752	847
45	691	696	690	700	747	753	743	838
44	683	688	682	692	739	745	735	830
43	674	680	673	683	731	737	727	822
42	666	672	665	675	723	729	719	814

Note: LNG rate to storage before boil off gas.

**Part of Process & SHE Engineering Memo 269/BP31/2012-252**

For the time being until further confirmation is taken, PSHEE recommends to avoid managing Train H production higher than 805 m<sup>3</sup>/hr or managing the power load of Turbine H4KT-2/3 higher than 50,000 HP to avoid any possible damage to the Turbine H4KT-2/3.

## Determining Trains Operating Scheme

### Basis:

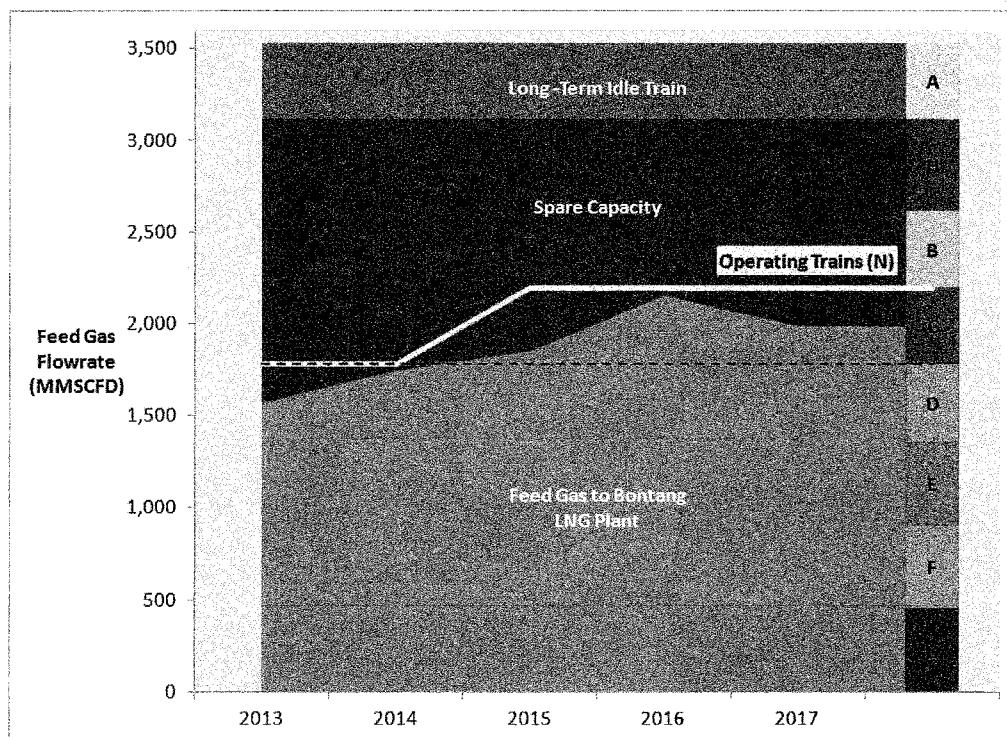
- Inlet feed gas and domestic fertilizer plant consumption as per Attachment – 2.
- Bontang LNG process train maximum capacity at reduced pressure in above table with basis of feed gas pressure at 42 kg/cm<sup>2</sup>g.

Determination of required process trains to operate and maintain shall base on the following:

- Required LNG process trains to process inlet feed gas as per basis above in a round-up number. This figure will be N.
- One (1) LNG process train (Train A) will be put in long-term idle starting from 2013.
- Excess of Trains will be put on Normal Idle condition, pending Gas Producers decisions.

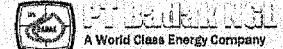
LNG process train to be put in Short-Term Idle/Extended Short-Term Idle/Long-Term Idle/Mothball proposed by PT Badak NGL:

1 <sup>st</sup>	A (will be put in LTI in 2013)
2 <sup>nd</sup>	B
3 <sup>rd</sup>	C
4 <sup>th</sup>	D
5 <sup>th</sup>	E
6 <sup>th</sup>	F
7 <sup>th</sup>	G
8 <sup>th</sup>	H



**ATTACHMENT – 4**  
**DETAIL SHUTDOWN SCHEDULES**

# FIVE YEARS SCHEDULE SHUTDOWN PLANT ( 2013 - 2017 )



YEAR	2 0 1 3	2 0 1 4	2 0 1 5	2 0 1 6	2 0 1 7
MONTH	J F M A M J J A S O N D	J F M A M J J A S O N D	J F M A M J J A S O N D	J F M A M J J A S O N D	J F M A M J J A S O N D
TRAIN A					
TRAIN B					
TRAIN C	TRAIN "C" 14 DAYS ( Aug 1 - 14 ) Replace Spool Pipe 20" with Block Valves at HPS line battery limit			TRAIN "C" 30 DAYS ( Sep 12 - Oct 11 ) Regular 4 years for Statutory Equip Probolog 4-E-1, MPI 1-C-2, B-Scan 4C-1, Insul Replacement	
TRAIN D	TRAIN "D" 14 DAYS ( Aug 1 - 14 ) Replace Spool Pipe 20" with Block Valves at HPS line battery limit			TRAIN "D" 30 DAYS ( Sep 1 - 30 ) Reguler 4 years for Statutory Equip Probolog 4E-1, MPI 1C-2, B-Scan 4C-1, Insul Replacement	
TRAIN E		TRAIN "E" 30 DAYS ( Aug 1 - 30 ) 4 & 8 years S/D Stat equip+ PSV Probolog 4E-1, MPI 1C-2 [mid girth]			
TRAIN F	TRAIN "F" 30 DAYS ( Sep 1 - 30 ) Replace DCS	TRAIN "F" 30 DAYS ( Aug 7 - Sep 5 ) 4 years for Statutory equip + PSV, Probolog 4E-1, 1C-2 MPI [mid girth], 12 Years 4C-1, Insulation replacement, 20 Years Surface Condensor probolog			TRAIN "G" 30 DAYS ( May 1 - 30 ) 4 years for Statutory equip. + PSV, Insulation repl. based on condition, Probolog G4-E-1
TRAIN G	TRAIN "G" 30 DAYS ( May 01 - 30 ) 4 years for Statutory equip. + PSV, Insulation repl. based on condition, Probolog G4-E-1				TRAIN "H" 30 DAYS ( May 14 - Jun 12 ) 4 & 12 years for Statutory equip + PSV, Insul replc based on condition, 12 Years 4C-1 & Probolog 4E-6
TRAIN H				UTIL II / "G" 15 days ( Sep 14 - 28 ), Cleaning C/W basin TR C/D	
UTIL. I				UTIL II / "H" 15 days ( May 16 - 30 ), Cleaning C/W basin TR H	UTIL II / "G" 15 days ( May 3 - 17 ), Cleaning C/W basin TR G
UTIL. II	UTIL II / "G" 15 days ( May 03 - 17 ) Cleaning C/W Basin	UTIL II / "H" 15 days ( Aug 9 - 23 ), Cleaning C/W Basin, Internal Inspect 31-C-23			
LOADING DOCK-1	LOADING DOCK-1 70 days ( Sep 1 - Nov 9 ), Overhaul				
LOADING DOCK-2	LOADING DOCK-2 26 days ( Mar 15 - Apr 8 ), Preventive Maintenance Inspection	LOADING DOCK-2 70 days ( Mar 1 - May 9 ), Overhaul			
	74 S/D DAYS 4 TRAINS	36 S/D DAYS 2 TRAINS	0 S/D DAYS 0 TRAIN	71 S/D DAYS 3 TRAINS	30 S/D DAYS 1 TRAINS
Updated note :	LEGEND: Scheduled Shutdown				

Issued date : Nov 23, 2012

Revision : 0

Note :

ASP / WPS / TTN / DED / RS / ASH / JS / MFR / YBR / RSK / TW / NRL / HNR / IMP / VCN / SBS / SLA / MAM / SA

Approval by :  
  
**DEDED HENDRA NS**  
Act. Vice President Production

**FORECAST EAST KALIMANTAN GAS RATE AND COMPOSITION**  
**SUBMITTED DURING NOVEMBER PRODUCERS' MEETING BASED ON 2P FOR CAPACITY CALCULATION**

**PT BADAK INLET**

	Rate	CO2	N2	C1	C2	C3	i-C4	n-C4	i-C5	n-C5	C6+	H20
<b>2013</b>	1,567	6.34	0.08	84.42	4.12	2.89	0.60	0.67	0.30	0.19	0.38	0.00
<b>2014</b>	1,742	5.97	0.09	85.03	3.97	2.83	0.59	0.67	0.29	0.19	0.37	0.00
<b>2015</b>	1,848	5.68	0.09	85.49	3.93	2.77	0.58	0.65	0.28	0.18	0.35	0.00
<b>2016</b>	2,151	4.78	0.09	87.22	3.62	2.49	0.52	0.58	0.25	0.16	0.30	0.00
<b>2017</b>	1,984	4.39	0.08	87.89	3.54	2.39	0.50	0.56	0.24	0.16	0.27	0.00

**VICO**

	Rate	CO2	N2	C1	C2	C3	i-C4	n-C4	i-C5	n-C5	C6+	H20
<b>2013</b>	370	14.05	0.10	75.81	4.65	3.02	0.58	0.74	0.27	0.18	0.60	0.00
<b>2014</b>	376	13.47	0.09	76.28	4.70	3.06	0.59	0.74	0.28	0.19	0.60	0.00
<b>2015</b>	375	13.29	0.09	76.36	4.80	3.08	0.59	0.75	0.27	0.19	0.58	0.00
<b>2016</b>	330	13.11	0.08	76.47	5.00	3.05	0.60	0.72	0.26	0.19	0.54	0.00
<b>2017</b>	273	12.39	0.06	76.92	5.45	3.02	0.62	0.66	0.24	0.19	0.43	0.00

**TOTAL**

	Rate	CO2	N2	C1	C2	C3	i-C4	n-C4	i-C5	n-C5	C6+	H20
<b>2013</b>	1,480	4.52	0.08	86.20	4.04	2.99	0.63	0.68	0.32	0.20	0.34	0.00
<b>2014</b>	1,616	4.50	0.09	86.32	3.98	2.96	0.63	0.68	0.32	0.20	0.33	0.00
<b>2015</b>	1,609	4.50	0.09	86.33	3.98	2.95	0.63	0.68	0.32	0.20	0.33	0.00
<b>2016</b>	1,559	4.47	0.09	86.40	3.95	2.94	0.63	0.68	0.31	0.20	0.32	0.00
<b>2017</b>	1,388	4.45	0.09	86.47	3.93	2.93	0.62	0.68	0.31	0.20	0.32	0.00

**CHEVRON**

	Rate	CO2	N2	C1	C2	C3	i-C4	n-C4	i-C5	n-C5	C6+	H20
<b>2013</b>	94	5.87	0.03	87.52	4.11	1.46	0.26	0.38	0.14	0.07	0.15	0.00
<b>2014</b>	90	5.71	0.03	87.23	4.05	1.76	0.33	0.48	0.17	0.09	0.16	0.00
<b>2015</b>	79	5.39	0.03	87.74	4.09	1.63	0.30	0.43	0.16	0.08	0.15	0.00
<b>2016</b>	60	4.90	0.03	88.51	4.16	1.44	0.26	0.37	0.14	0.07	0.12	0.00
<b>2017</b>	51	4.39	0.04	89.18	4.21	1.33	0.23	0.34	0.12	0.06	0.10	0.00

**CHEVRON - DEEP WATER**

	Rate	CO2	N2	C1	C2	C3	i-C4	n-C4	i-C5	n-C5	C6+	H20
<b>2013</b>	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>2014</b>	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>2015</b>	51	2.05	0.19	88.18	5.06	3.04	0.50	0.62	0.14	0.10	0.13	0.00
<b>2016</b>	101	2.07	0.19	88.30	5.11	3.01	0.47	0.57	0.12	0.08	0.08	0.00
<b>2017</b>	171	1.65	0.14	91.34	3.65	2.15	0.35	0.44	0.11	0.07	0.11	0.00

**PEARL OIL - SEBUKU**

	Rate	CO2	N2	C1	C2	C3	i-C4	n-C4	i-C5	n-C5	C6+	H20
<b>2013</b>	20	0.70	0.20	97.60	0.20	0.40	0.20	0.20	0.10	0.10	0.30	0.00
<b>2014</b>	80	0.70	0.20	97.60	0.20	0.40	0.20	0.20	0.10	0.10	0.30	0.00
<b>2015</b>	82	0.70	0.20	97.60	0.20	0.40	0.20	0.20	0.10	0.10	0.30	0.00
<b>2016</b>	82	0.70	0.20	97.60	0.20	0.40	0.20	0.20	0.10	0.10	0.30	0.00
<b>2017</b>	82	0.70	0.20	97.60	0.20	0.40	0.20	0.20	0.10	0.10	0.30	0.00

**ENI - JANGKRIK**

	Rate	CO2	N2	C1	C2	C3	i-C4	n-C4	i-C5	n-C5	C6+	H20
<b>2013</b>	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>2014</b>	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>2015</b>	72	0.99	0.04	95.85	1.62	0.86	0.18	0.23	0.08	0.06	0.09	0.00
<b>2016</b>	439	0.99	0.04	95.85	1.62	0.86	0.18	0.23	0.08	0.06	0.09	0.00
<b>2017</b>	439	0.99	0.04	95.85	1.62	0.86	0.18	0.23	0.08	0.06	0.09	0.00