



UBP. PRIOK

ENERGY MANAGEMENT IN PRIOK POWER PLANT 08 October 2014



fresh and clean



UBP.PRIOK:
TRUSTED, OUT STANDING, PERFORMANCE

PROFILE OF TANJUNG PRIOK COMBINED CYCLE POWER PLANT

POWER GENERATION IN PT INDONESIA POWER



UP Suralaya
Steam Coal PP
3,400 MW



UBOH Banten 1 Suralaya
Steam Coal PP
600 MW (O&M)



UBOH Banten 2 Labuan
Steam Coal PP
625 MW (O&M)



UP Priok
GT, CCGT & Diesel PP
1,348 MW



UP Semarang
CCGT & SPP
1,469.16 MW



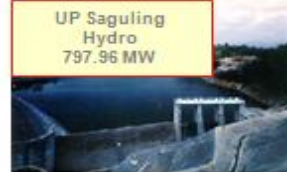
UP Perak Grati
SPP & CCGT
864 MW



UBOH Banten 3 Lontar
Steam Coal PP
945 MW (O&M)



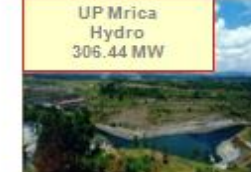
UBOH Jabar 2
Pei. Ratu, Steam Coal
PP, 1,050 MW (O&M)



UP Saguling
Hydro
797.96 MW



UP Kamojang
Geothermal
375 MW



UP Mrica
Hydro
306.44 MW



UP Bali
GT & Diesel
432.67 MW

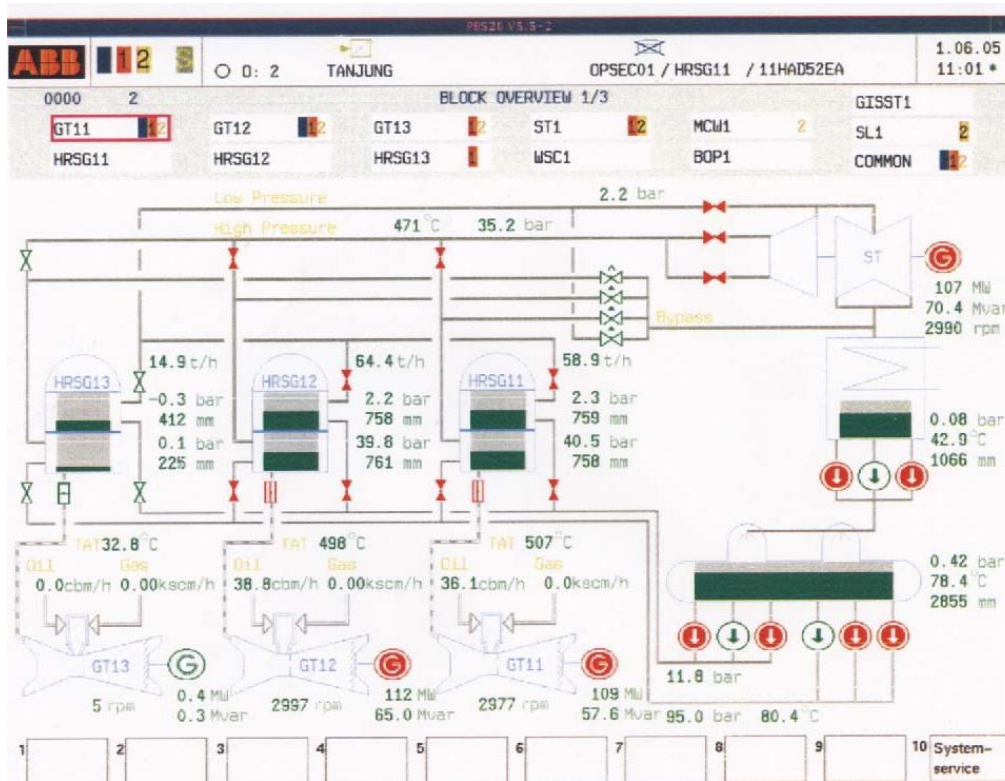
LAY OUT

(satelite view)



Over view Priok Power Plant

BLOK 1-2



- Consist of 2 Block Combined Cycle which is consist 3 Gas Turbine, 3 HRSG and 1 Steam Turbine for each block
- Capacity of Gas Turbine is 130 MW for each
- Capacity of Steam Turbine is 200 MW

Over view Priok Power Plant

BLOCK 3



- Consist of 1 block Combined Cycle, which have 2 Gas Turbine, 2 HRSG and 1 Steam Turbine
- Capacity of Gas Turbine is 315 MW for each
- Capacity of Steam Turbine is 315 MW

Over view Priok Power Plant



Load of Priok Power Plant on Tuesday 24 Juni 2014 at 20:00

CAPACITY OF PRIOK PP

UNIT PEMBANGKIT	KAPASITAS TERPASANG (RKAP 12) [MW]	KAPASITAS TERPASANG ¹⁾ [MW]	KAPASITAS AS BUILT ²⁾ [MW]	DERATING PERMANEN+ TEMPORER [MW]	DAYA MAMPU BRUTO ³⁾ [MW]	PS & TRAFLO LOSS [MW]	DAYA MAMPU NETTO [MW]
TOTAL PRIOK	1.348,08	1.348,08	1.329,10	167,68	1.161,42	27,36	1.134,05
GRID CONNECTED GENERATOR:	1.332,00	1.332,00	1.313,02	162,60	1.150,42	25,95	1.124,47
PLTU	100,00	100,00	100,00	30,00	70,00	10,00	60,00
PLTU 3	50,00	50,00	50,00	15,00	35,00	5,00	30,00
PLTU 4	50,00	50,00	50,00	15,00	35,00	5,00	30,00
PLTG	52,00	52,00	52,00	17,54	34,46	0,46	34,00
PLTG 1 (WH 1)	26,00	26,00	26,00	8,77	17,23	0,23	17,00
PLTG 3 (WH 2)	26,00	26,00	26,00	8,77	17,23	0,23	17,00
PLTGU I & II	1.180,00	1.180,00	1.161,02	115,07	1.045,95	15,49	1.030,46
BLOK I	590,00	590,00	574,32	18,55	555,77	8,27	547,50
GT 11	130,00	130,00	129,66	3,90	125,76	0,76	125,00
GT 12	130,00	130,00	128,41	2,65	125,76	0,76	125,00
GT 13	130,00	130,00	131,07	5,31	125,76	0,76	125,00
ST 14	200,00	200,00	185,18	6,69	178,49	5,99	172,50
BLOK II	590,00	590,00	586,70	96,52	490,18	7,22	482,96
GT 21	130,00	130,00	132,80	21,69	111,11	0,81	110,30
GT 22	130,00	130,00	135,42	24,09	111,33	0,81	110,52
GT 23	130,00	130,00	133,95	23,14	110,81	0,81	110,00
ST 24	200,00	200,00	184,53	27,60	156,93	4,79	152,14
EMBEDDED GENERATOR:	16,08	16,08	16,08	5,08	11,00	1,41	9,59
PLTD Senayan	16,08	16,08	16,08	5,08	11,00	1,41	9,59
PLTD 1	2,52	2,52	2,52	1,02	1,50	0,23	1,27
PLTD 2	3,00	3,00	3,00	0,50	2,50	0,26	2,25
PLTD 3	2,52	2,52	2,52	1,02	1,50	0,23	1,27
PLTD 4	2,52	2,52	2,52	1,02	1,50	0,23	1,27
PLTD 5	2,52	2,52	2,52	1,02	1,50	0,23	1,27
PLTD 6	3,00	3,00	3,00	0,50	2,50	0,26	2,25

MAIN COMPONENT

- GAS TURBINE

- * Compressor
- * Combustor
- * Gas Turbine & Generator

- HRSG (Heat Recovery Steam Generator)

- * LP&HP Drum,
- * LP&HP Economizer
- * LP&HP Evaporator
- * HP Super heater
- * Flap damper

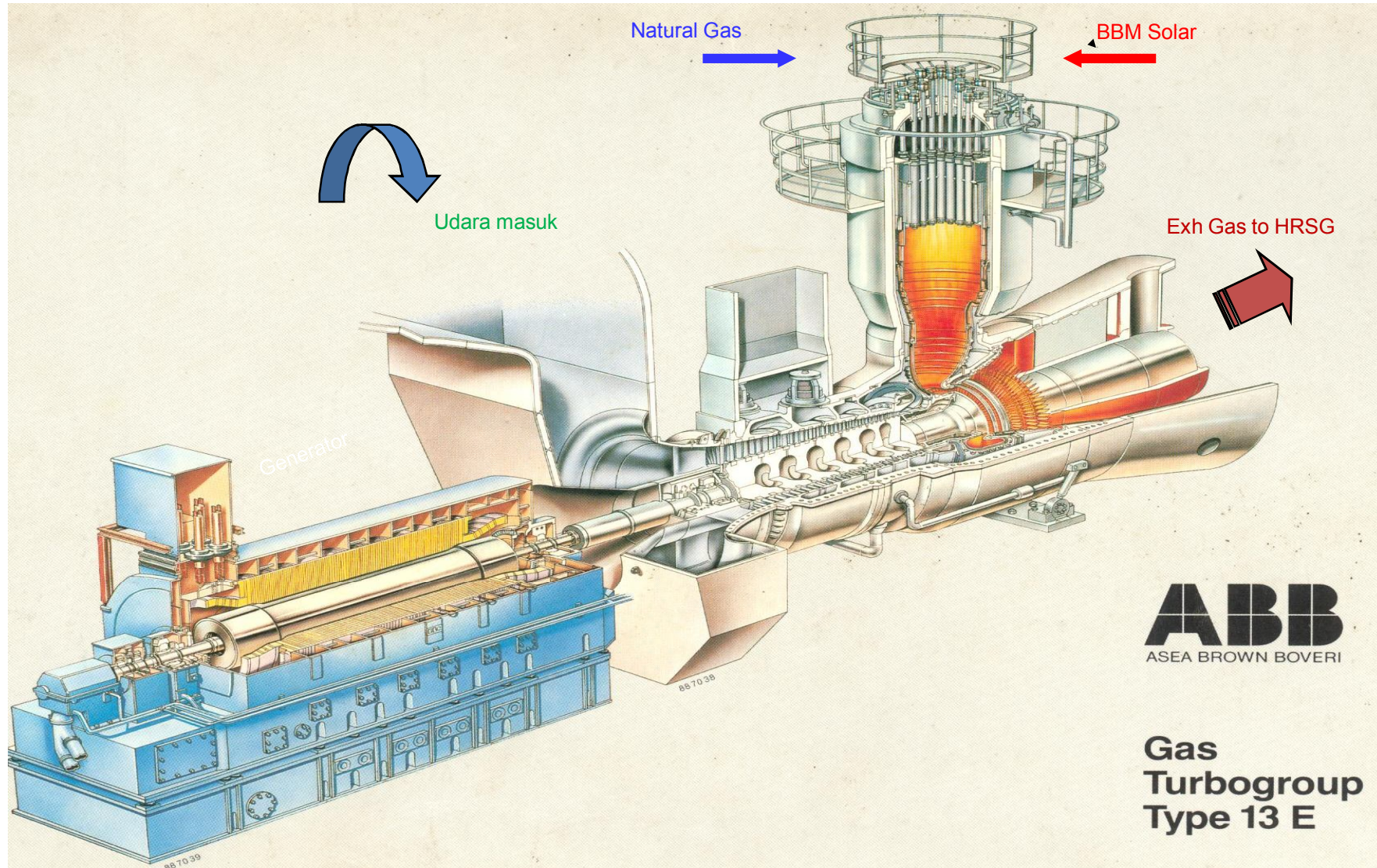
- STEAM TURBINE

- * HP & LP Steam Turbine,
- * Condenser & Generator

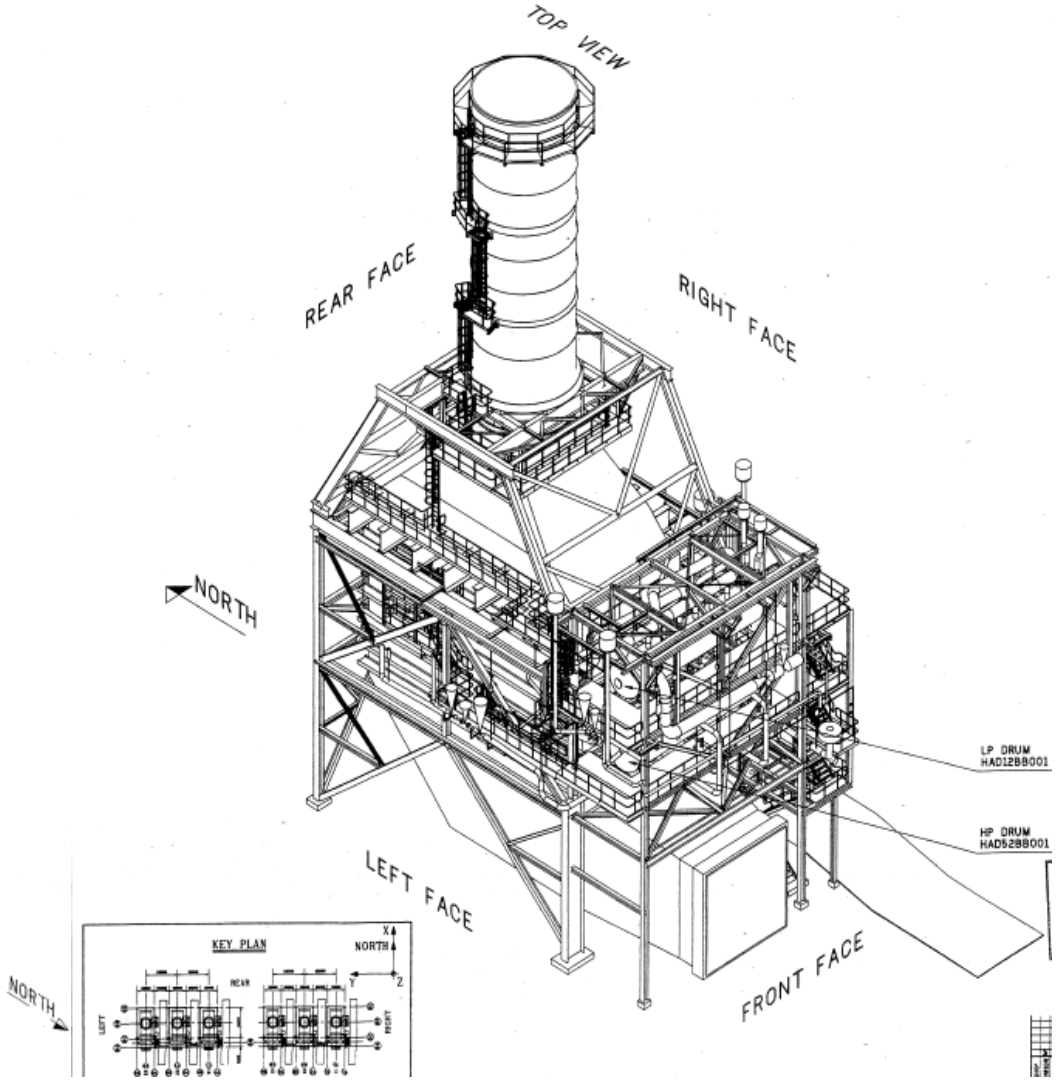
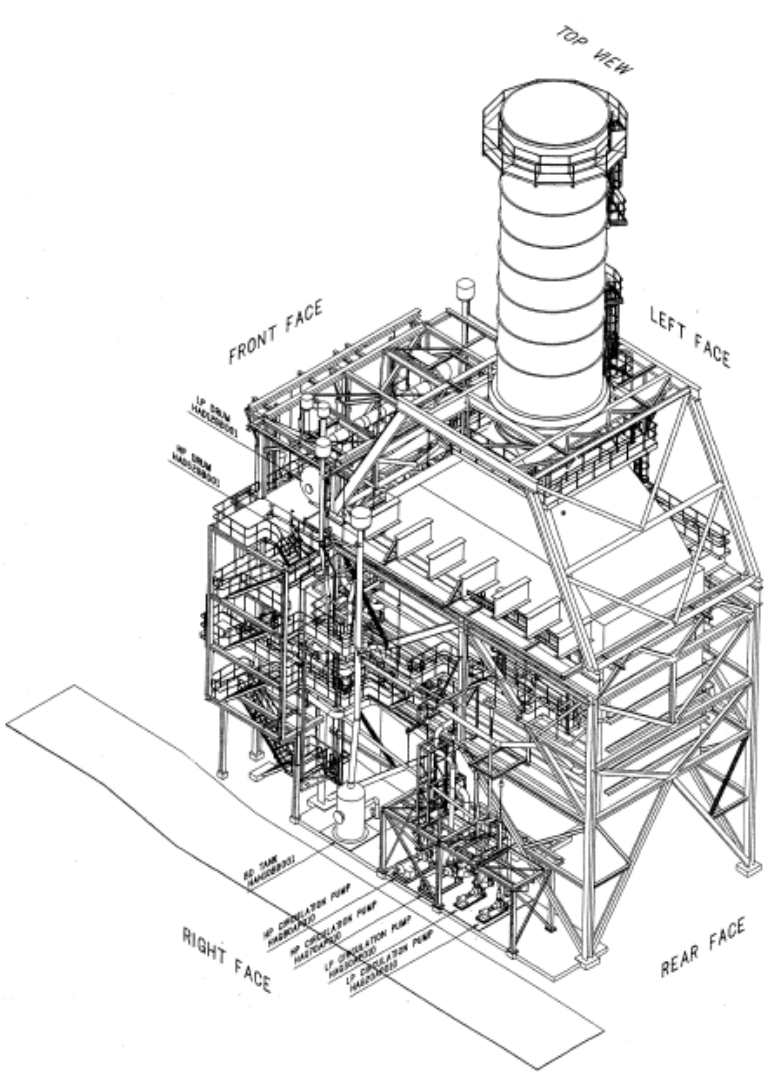
- BOP (Balance Of Plant)

- * Water Intake
- * Chlorination Plant
- * Desalination Plant
- * Water Treatment
- * Waste Water Treatment

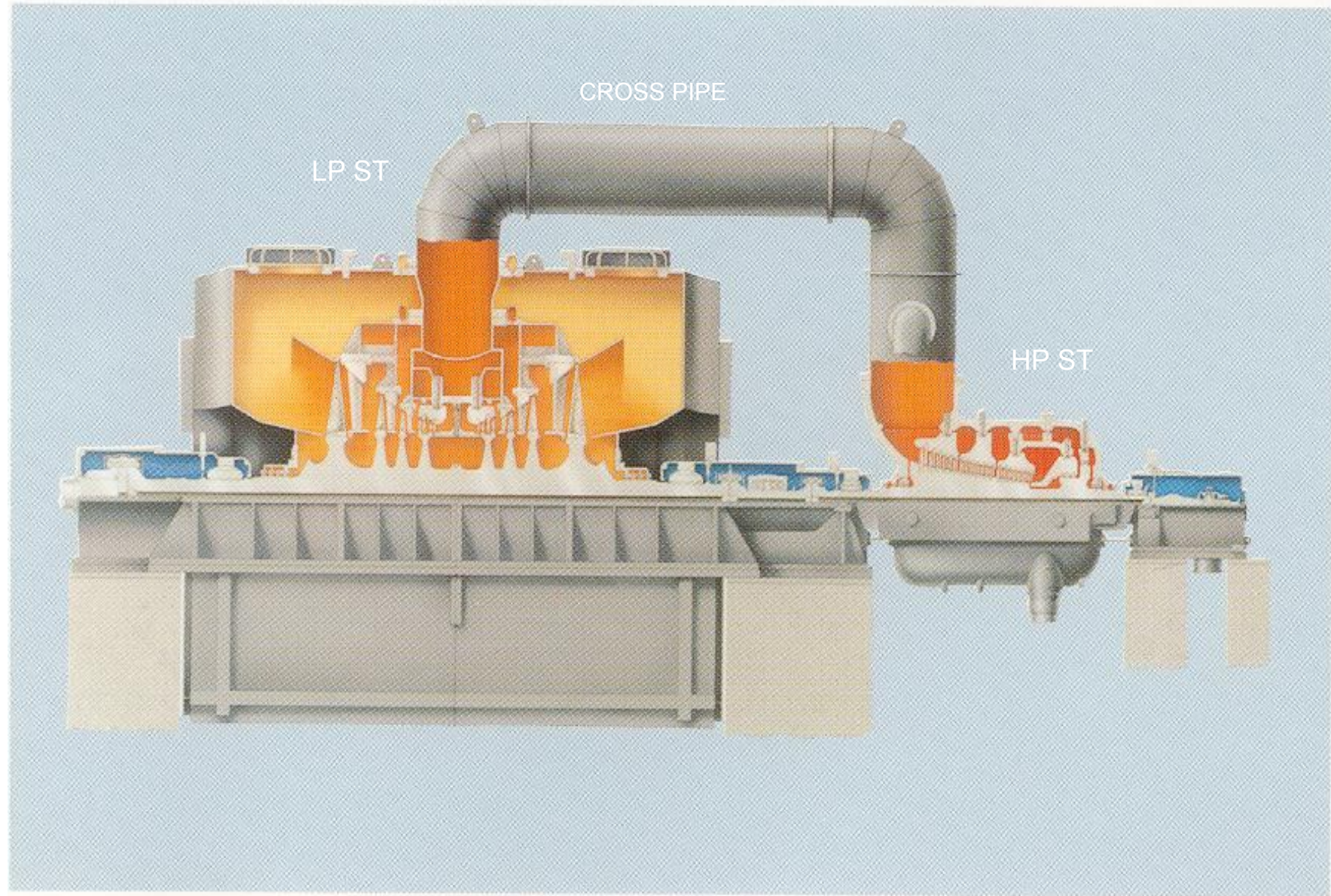
GAS TURBINE



Heat Recovery Steam Generator (HRSG)



Steam Turbine



BALANCE OF PLANT (BOP)



Water Treatment



Desalination Plant



Water Intake



Waste Water Treatment

Start & Open Cycle Operation

START GT
dengan SFC
(Starting Frequency
Converter)

- SFC ON (0 rpm)
- Flame On (300 rpm)
- 1000 rpm
- 1500 rpm
- 2000 rpm
- 2500 rpm
- 2750 rpm
- 3000 rpm
- 10 MW
- 20 MW
- 30 MW
- 40 MW

Fuel

Air

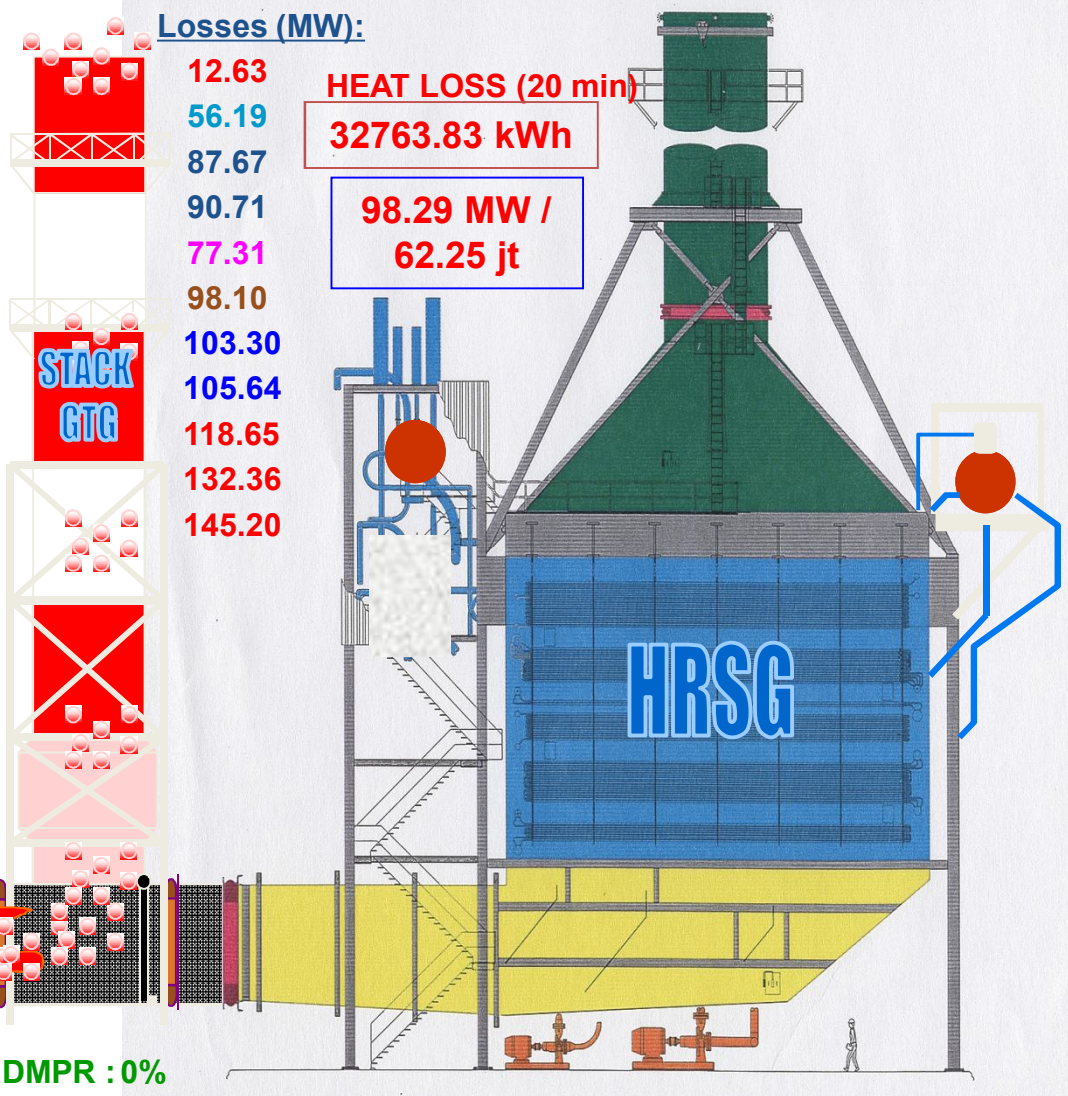
30°C

451°C

GTG

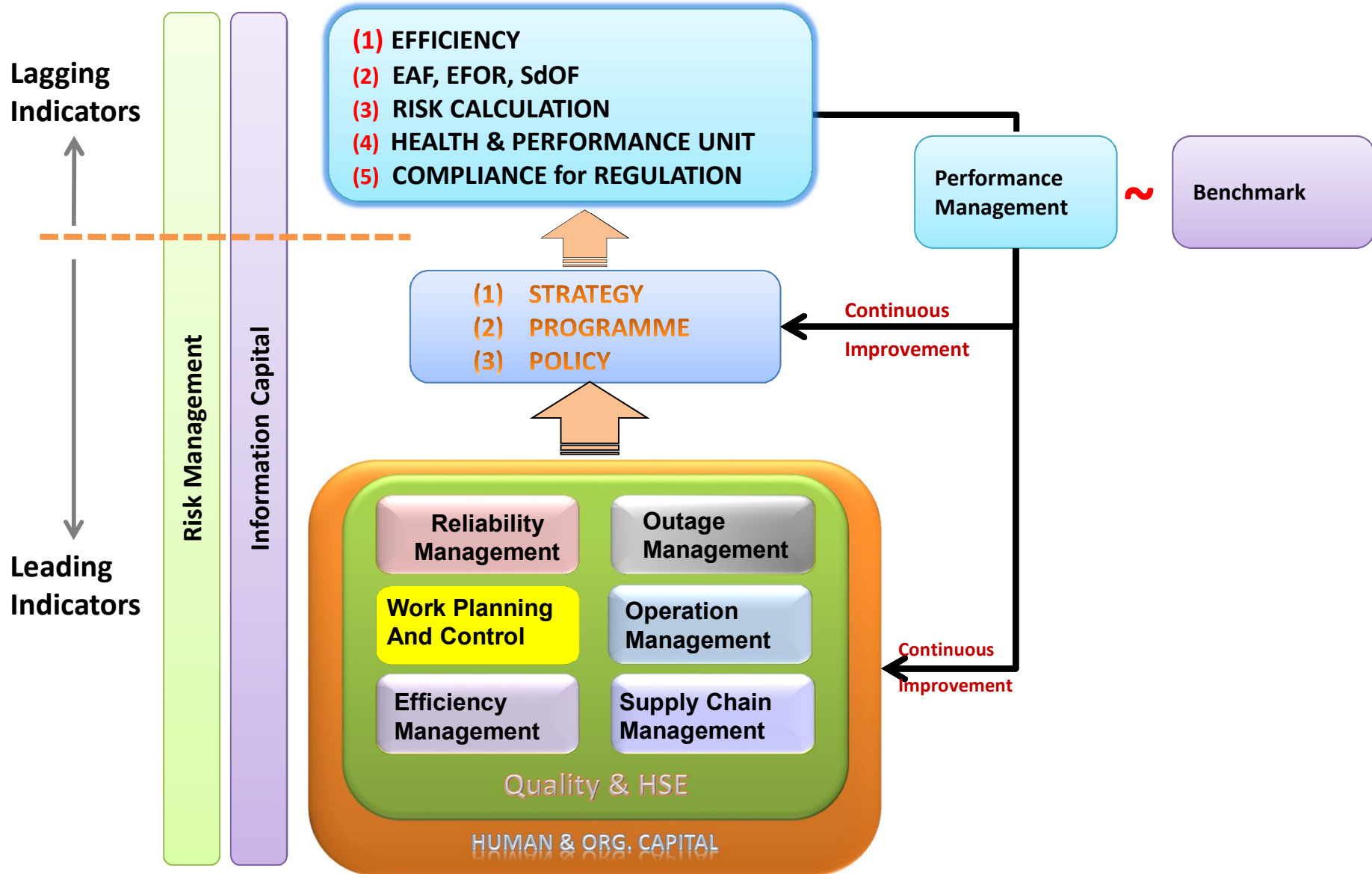
IGV : 56°

DMPR : 0%



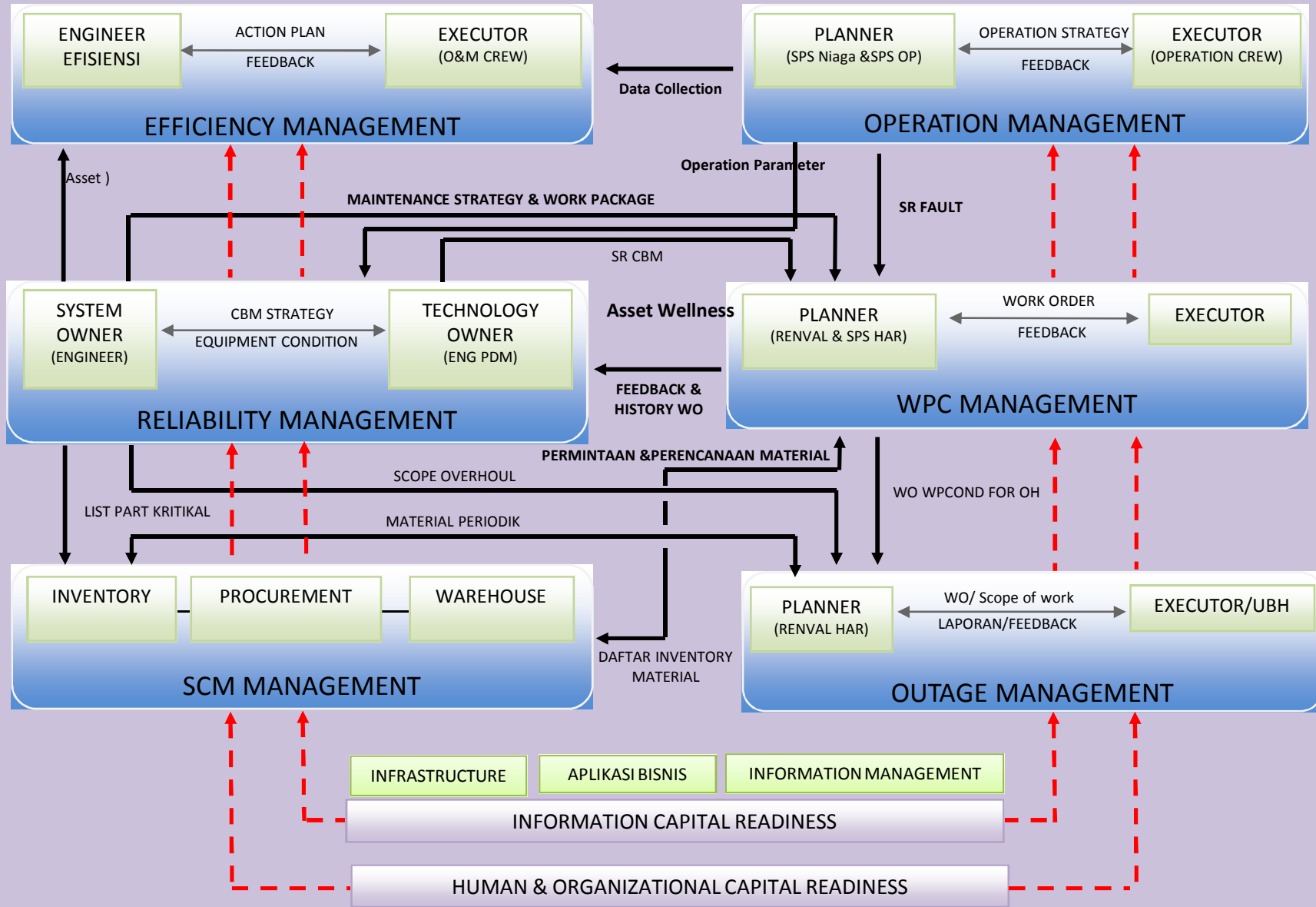
IMPLEMENTATION OF MANAGEMENT ASSET

Asset Management in Perspective Operation & Maintenance



INTEGRATED ASSET MANAGEMENT

R
I
S
K
M
A
N
A
G
E
M
E
N
T

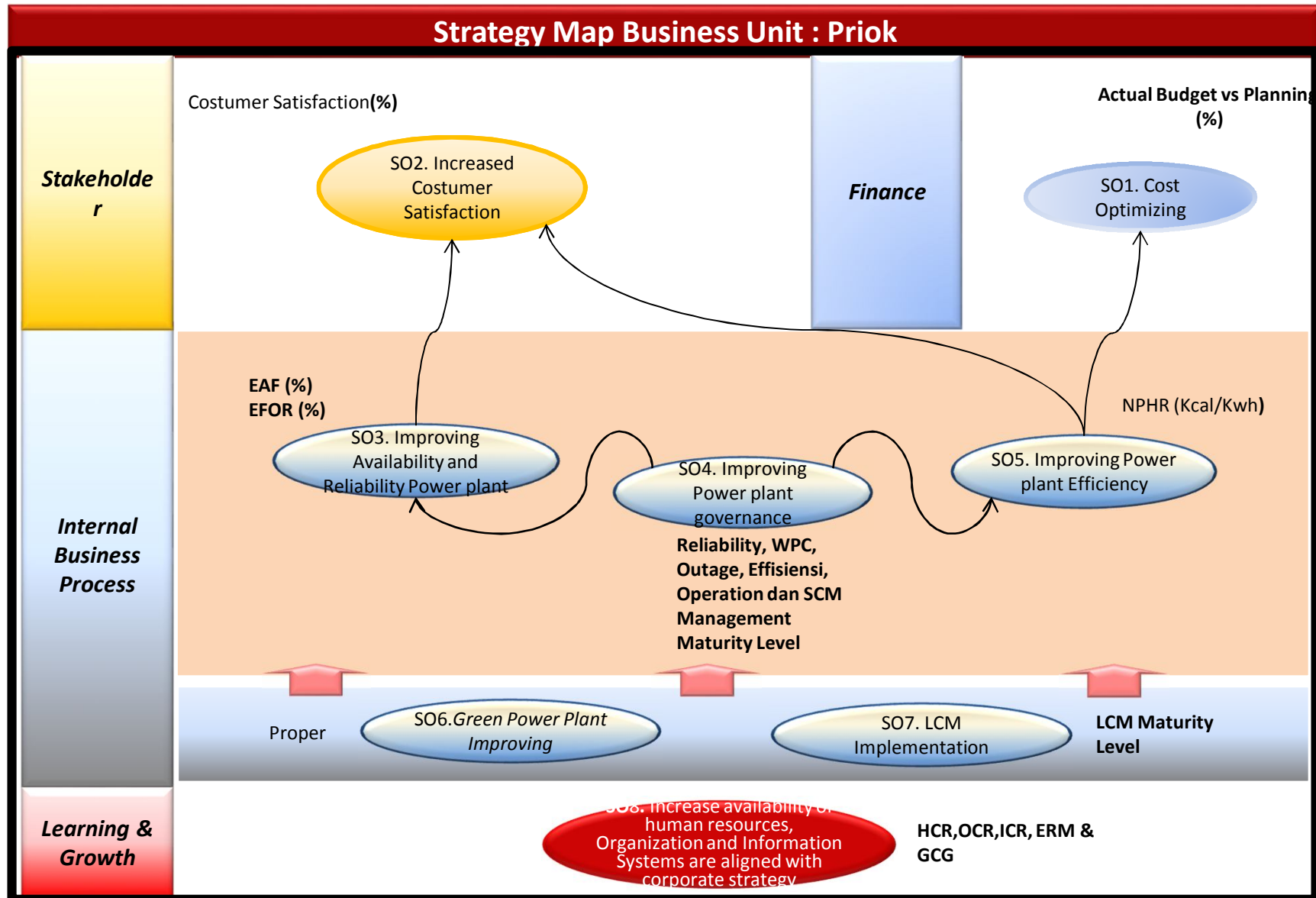


LAMPIRAN: KONTRAK MANAJEMEN No: 02.KM/004/IP/2014

No	INDIKATOR KINERJA KUNCI	SATUAN	BOBOT	Target SM I	Target SM II
I	Perspektif Pelanggan		3		
1.1	Nilai Kepuasan Pelanggan	%	3		82
II	Efektifitas Produk dan Proses		47		
2.1	EAF	%	5	87.92	90.76
2.2	EFOR	%	4	1.74	1.47
2.3	SdOF	kali	4	1.00	2.14
2.4	SdE	%	4	7.65	6.52
2.5	Efisiensi Thermal	%	4	37.16	37.21
2.6	Maturity Level Asset Management				
	(a) Efficiency Management	Level	3	4.07	4.12
	(b) Operation Management	Level	2	4.19	4.23
	(c) Optimasi WPC	Level	4	4.20	4.24
	(d) Outage Management	Level	4	4.14	4.19
	(e) Reliability Improvement	Level	4	4.05	4.10
	(f) Supply Chain Management	Level	3	4.05	4.11
2.7	Pengelolaan K3 & Lingkungan	Level	4	3.80	3.93
2.8	Reverse Engineering dan produk dalam Negeri material cadang/part	Rp Milyar	2	13.35	17.48
III	Fokus Tenaga Kerja		10		
3.1	HCR & OCR	Level	7	3.65	4.00
3.2	Information Capital Readiness (ICR)	Level	3	3.70	3.82
IV	Keuangan dan Pasar		21		
4.1	Kinerja Anggaran				
	(i) Pelaksanaan Program Investasi sudah terkontrak	%	3	66.67	100.00
	(ii) Realisasi Fisik Program investasi sudah selesai dan operasi	%	4	57.18	90.00
4.2	Biaya OPEX Non Fuel				
	(a) Biaya Pemeliharaan	Rp Juta	3	236.051.58	350.721.98
	(b) Biaya Kepegawaian	Rp/kW Availability	2	41.046.17	87.708.63
	(c) Biaya Administrasi	Rp/kW Availability	3	27.131.21	31.984.81
4.3	Inventory Turnover				
	(i) ITO BBM	Hari	2	18	18
	(ii) ITO Material Umum	Kali	3	2.63	6.34
4.4	Kas Maksimum	Rp Juta	1	750	750
V	Kepemimpinan, Tata Kelola dan Tanggung jawab Kemasyarakatan		19		
5.1	Penerapan GCG	Score	2		90
5.2	Manajemen Risiko	Level	4	3.91	4.04
5.3	Pelaksanaan CSR	%	1	87	87
5.4	Kepatuhan				
	(i) Ketaatan terhadap peraturan	%	4	100	100
	(ii) Ketaatan penerapan BSC	%	1	100	100
	(iii) Ketaatan pelaksanaan InPower IMS	%	2	75	100
	(iv) Malcolm Baldrige	%	1	75	100
5.5	Eval. Efek. Investasi 3 tahun terakhir	%	2	100	100
5.6	PLN Bersih	Indeks	2	70	3.75
	TOTAL		100		

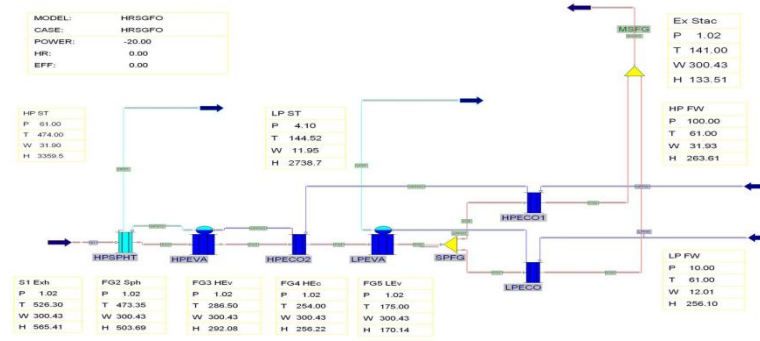
**CONTRACT
MANAGEMENT
OF PRIOK PP
2014**

Strategy Map – UBP PRIOK

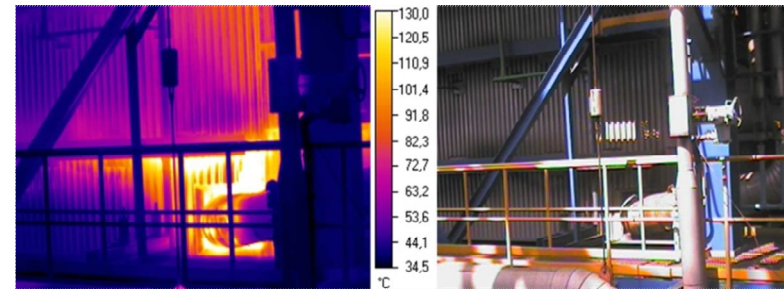


EFFICIENCY MANAGEMENT ACTIVITY

Gate Cycle Model

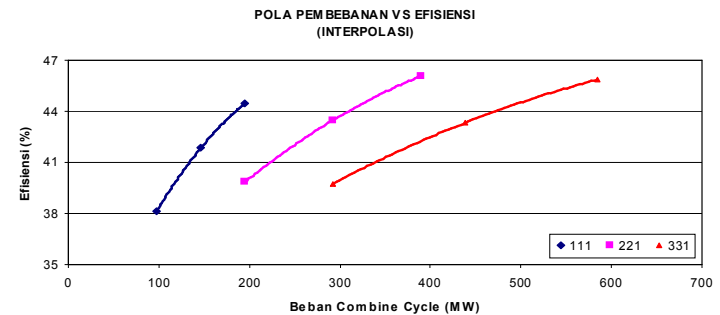


Monitoring Heat Loss in HRSG with Thermography Camera



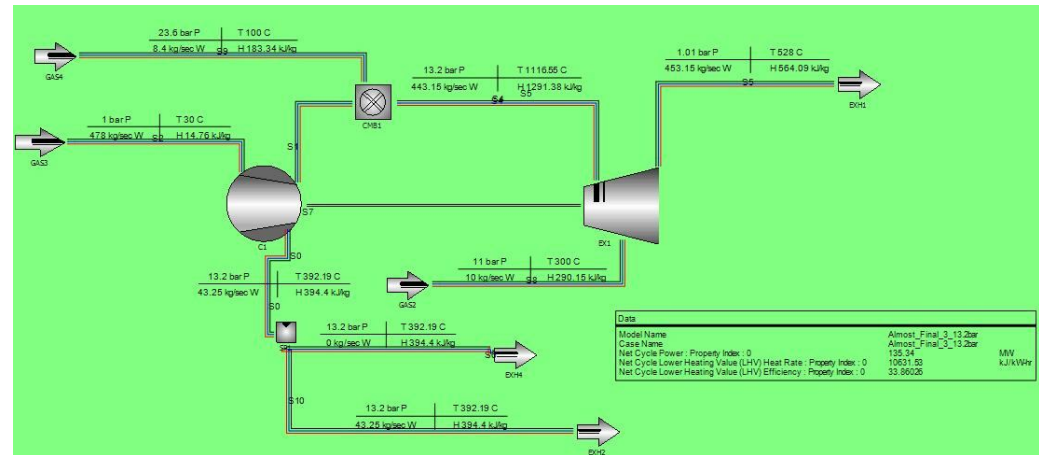
HRSG.21 Dinding Barat Tengah.1

Optimasi Part Load Operation



EFFICIENCY MANAGEMENT

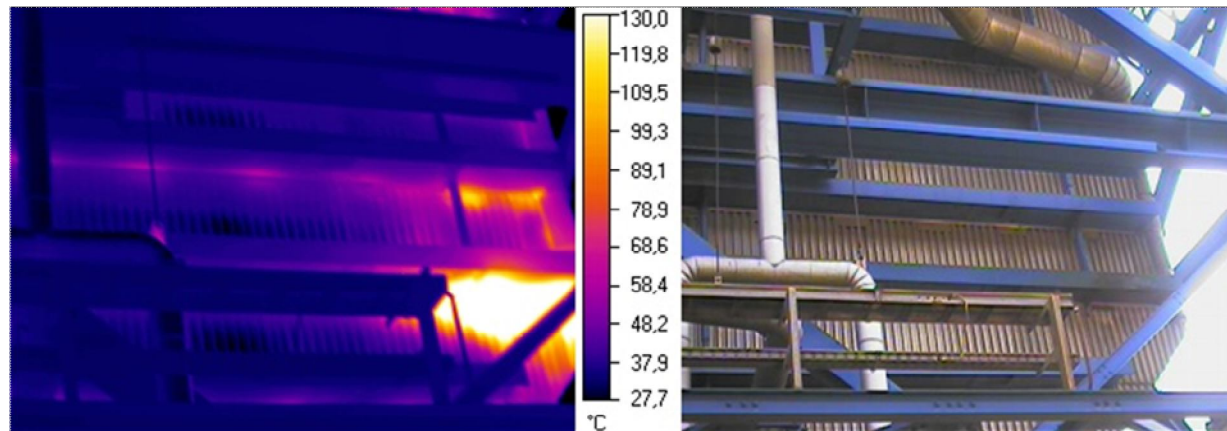
**In House Training GATE CYCLE by Mr Yudi Hidayat
(Operation Manager PERAK GRATI PP)**



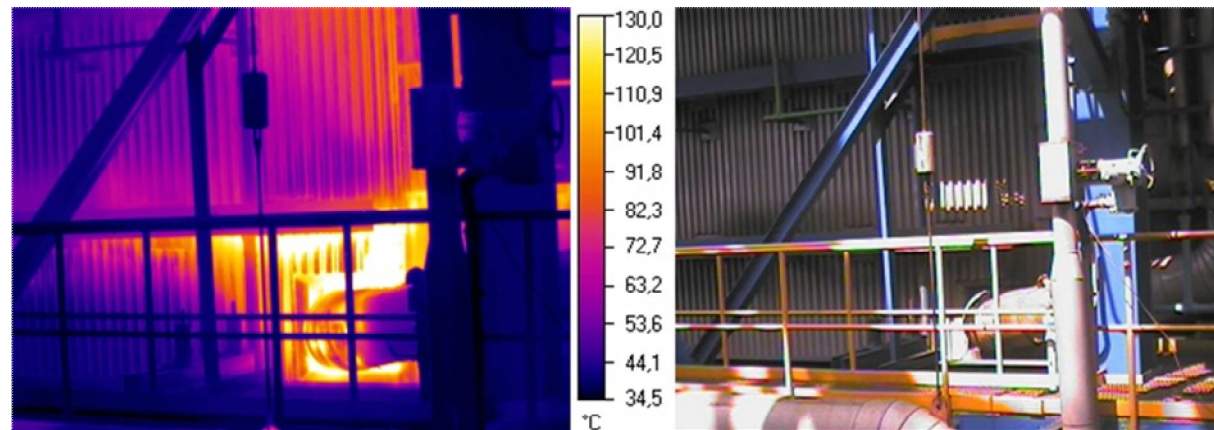
**TURBIN GAS MODEL
with GATE CYCLE v6.00**



Example : Heat losses in HRSG



HRSG.21 Dinding Timur Tengah

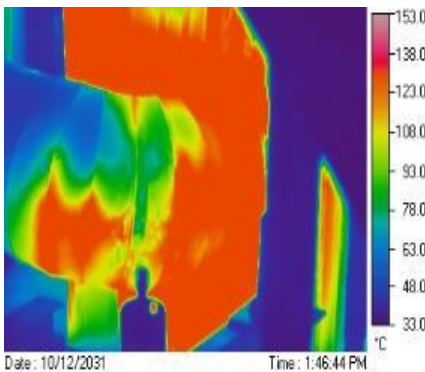


HRSG.21 Dinding Barat Tengah.1

Aspect which decrease efficiency :
poor performance of insulation (Glasswool) decrease equipment efficiency.

IMPLEMENTATION of MAINTENANCE STRATEGY (PdM Thermography)

Outlet HP Evaporator

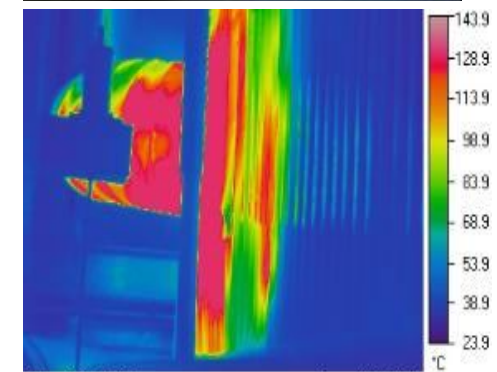


Date: 10/12/2031

Time: 1:46:44 PM



Outlet HP Superheater

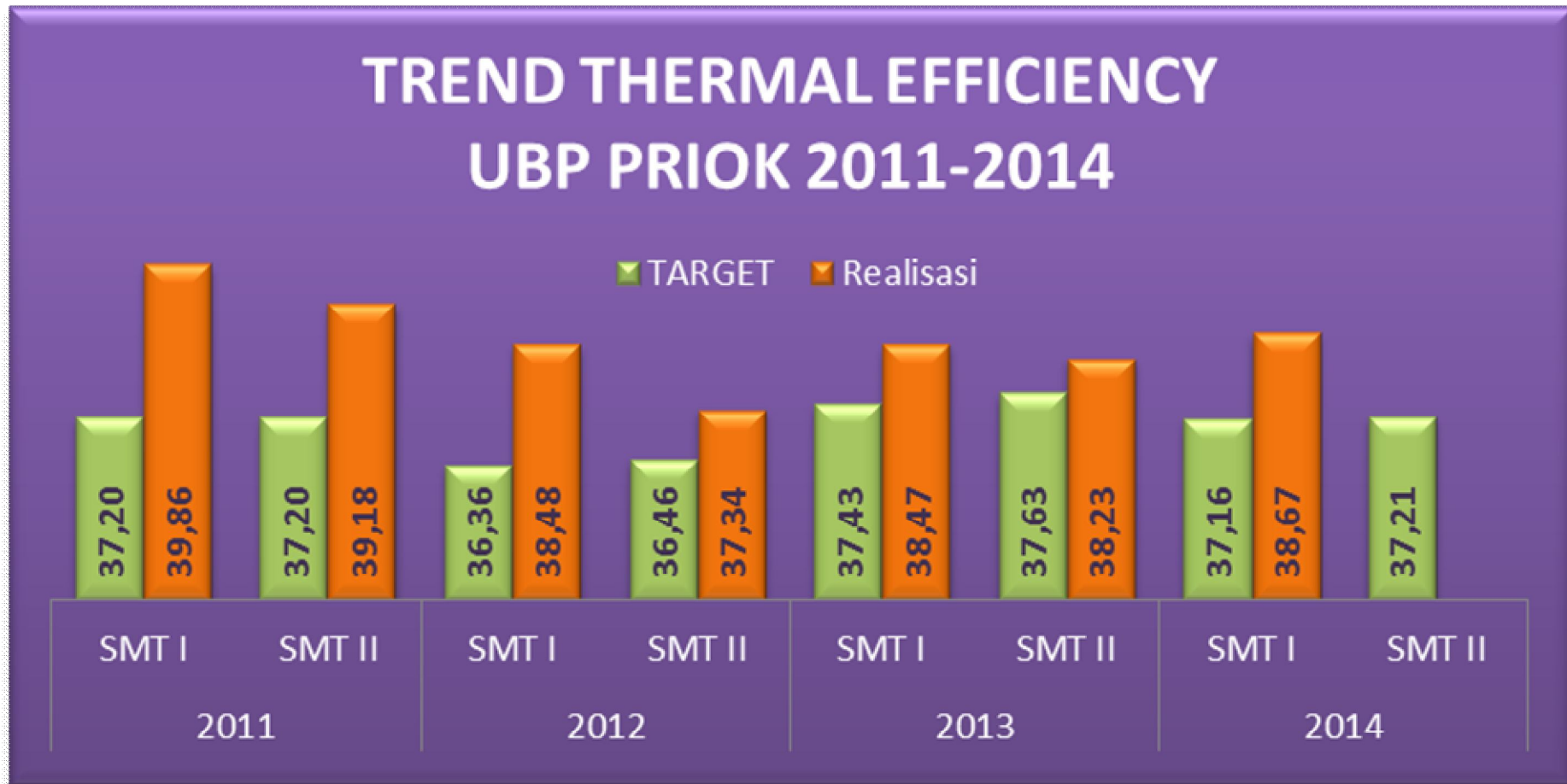


Date: 10/12/2031

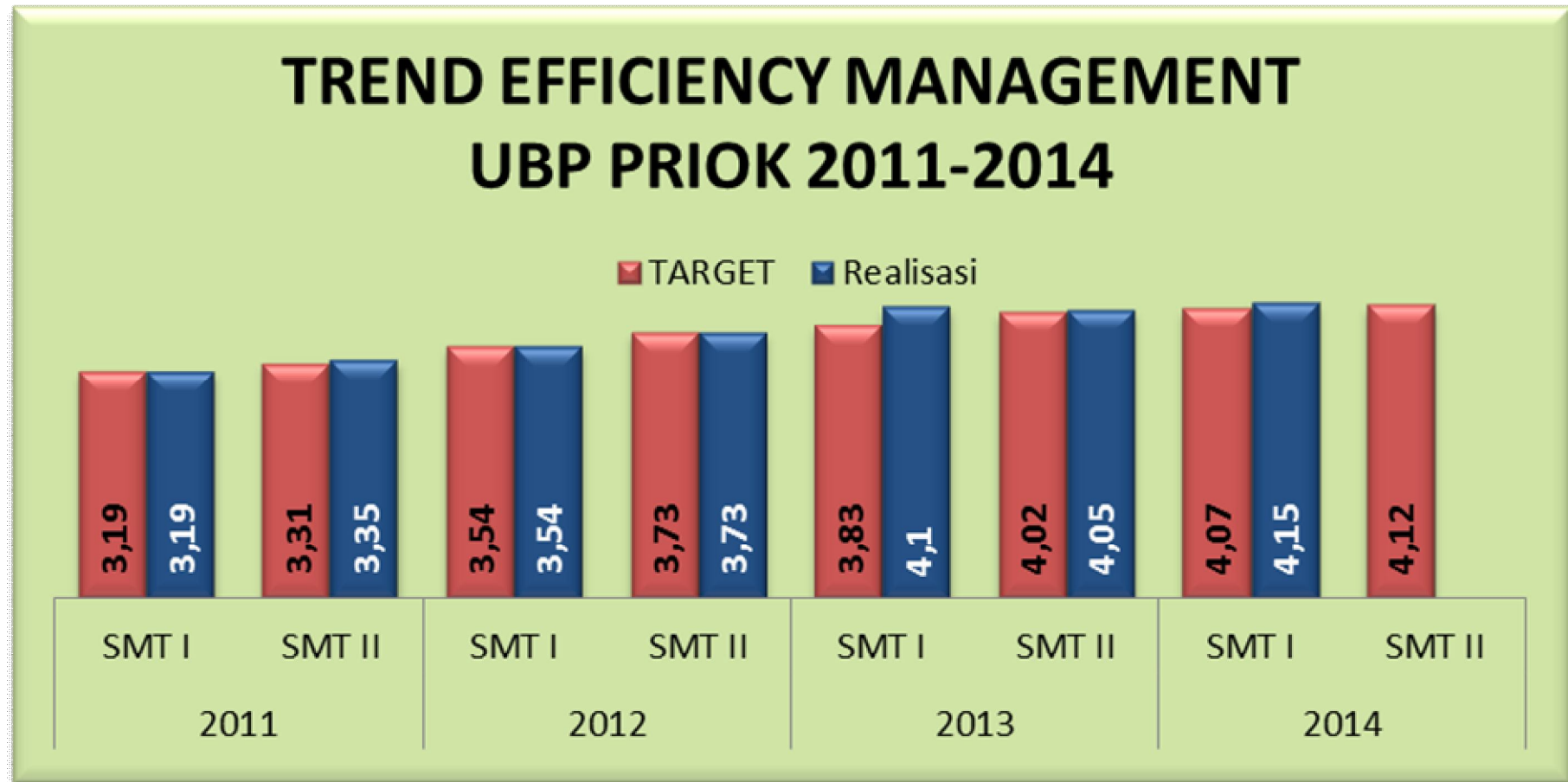
Time: 1:43:34 PM

Teknologi Examination PdM Sebagai Rekomendasi bagi Efficiency Management

TREND THERMAL EFFICIENCY



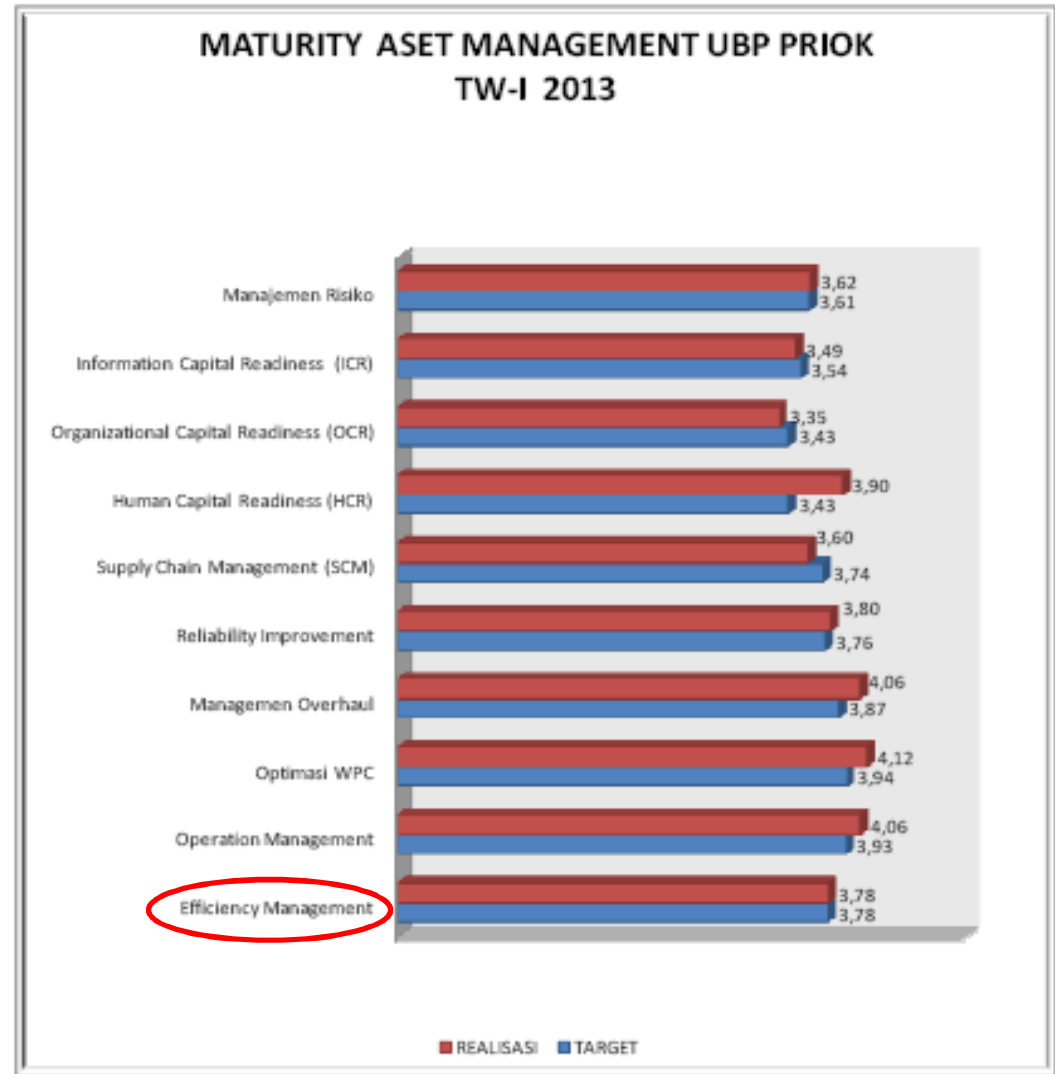
TREND MATURITY LEVEL of EFFICIENCY MANAGEMENT



SELF ASSESMENT MATURITY LEVEL AM in UBP PRIOK



Self Assesment AM is attended by Head Office staff
(Mrs. Fahmilia)





Terima Kasih

Jl. Jend. Gatot Subroto Kav. 18
Jakarta Selatan 12950

www.indonesiapower.co.id

kontak-ip@indonesiapower.co.id