

Availability at Daily Maximum Demand Hour

ST-Coal	0 MW
ST-Gas	0 MW
ST-Oil	0 MW
Gas	3,289 MW
Hydro	2,509 MW
Distillate	0 MW
Total TNB	5,798 MW
Total IPP	15,529 MW
Total Co-Gen	0 MW
Total System	21,327 MW

Generation Mix

Type	MWh	Percentage
Gas	31,321	10.59 %
Hydro	15,950	5.39 %
Total TNB	47,271	15.98 %
ST-Coal	172,747	58.39 %
ST-Gas	2,254	0.76 %
Gas	72,676	24.57 %
Total IPP	247,677	83.72 %
Co-Gen	1,166	0.39 %
Total Co-Gen	1,166	0.39 %
Total Generation	296,114	100.09 %
PLTG	-463	-0.16 %
HVDC	732	0.25 %
Interconnection	269	0.09 %
Net Energy	295,845	100.00 %

Maximum Demand Record

Date: 4/20/2016	17,788 MW
Date: 4/20/2016	372,457 MWH

Set On Bus, TNB, IPP And MD

Daily Maximum Demand Hour at:	20:00:00 Hour
Total Set On Bus	15,730 MW
TNB Generation	2,515 MW
IPP Generation	11,273 MW
Spinning Reserve	1,895 MW
Maximum Demand	13,784 MW
Net Energy	295,845 MWH
Load Factor	89.43 %

Fuel Cost

Total Cost:	47,445,149.30 RM
Cost per Unit	16.94 cents/kWH

Average Spinning Reserve During Peak Hour

Type	MW
GT	469
Hydro	97
Syncon	1,220
Thermal	304
Total	2,090

Time	Weather	Temperature
Afternoon	Hot	33
Morning	Sunny	28

Gas Usage

Station	(mmscfd)
CBPS	34
GLGR	49
PGPS	50
TJGS	107
Total TNB	240
CBPS	55
KLPP	97
MPSS	47
NPRI	97
PGLA	102
PLPS	77
SGRI	62
PKLG	22
Total IPP	558
Total Gas	797

Total Gas Required 797

Alternate Fuel Usage

Station	(mmscfd)
Total	0

Hourly System MW Generation

	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
System Total	11751	11233	10907	10558	10314	10289	10343	10570	11030	12282	13010	13447	13356	13157	13368	13648	13696	13462	12634	12705	13784	13588	13264	12911

Daily MW Generation on Tuesday

Station	Unit	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300																										
Interconnection		-2	-47	-22	-26	1	7	-6	37	-21	-59	-57	-52	-35	-72	38	-7	9	39	-26	-10	30	16	-4	148	39	35	68	-92	2	38	34	63	26	-19	21	63	93	8	4	56	51	123	51	0	54	-59	48	-45		
System Total		11751	11508	11233	11098	10907	10700	10558	10384	10314	10383	10289	10188	10343	10501	10570	10767	11030	11691	12282	12644	13010	13250	13447	13444	13356	13285	13157	13288	13371	13639	13649	13583	13696	13621	13462	12956	12634	12539	12705	13428	13786	13715	13589	13512	13264	13132	12911	12739		
SRev ST-Coal		106	147	149	141	171	203	281	265	265	253	251	268	269	336	326	380	378	376	341	278	245	225	233	236	301	302	331	288	291	299	290	263	280	282	292	362	462	718	684	450	361	341	420	394	417	167	176	195		
SRev CCGT-Gas		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SRev CCGT-Gas		729	687	594	523	396	433	523	596	541	527	625	708	689	1146	885	942	747	569	666	706	589	462	461	342	583	693	743	496	687	419	410	415	349	384	438	782	921	676	534	380	348	375	314	389	574	584	590	565		
SRev ST-Gas		3	46	46	46	46	47	46	47	47	46	46	47	46	46	46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SRev Co-Gen		9	11	10	10	9	7	9	10	8	8	9	8	8	7	11	8	9	12	11	12	12	13	13	15	12	13	14	14	12	-27	-27	-25	-16	-10	-29	-29	-29	-29	-29	-27	-26	-28	-28	-28	-30	-27	-27	-28		
Syncon		1252	1252	1101	1101	1101	1101	1101	1252	1252	1252	1252	1252	1252	1252	1252	1252	1252	1252	1252	1252	1252	1252	1252	1252	1252	1252	1252	1252	1252	1252	1252	1252	1252	1252	1252	1252	1252	1252	1252	1252	1252	1252	1252	1252	1252	1252	1252	1252		
Hydro		55	27	183	166	169	166	163	43	41	33	33	36	37	38	67	53	66	63	62	67	69	69	69	69	188	66	75	49	190	55	60	115	151	80	88	68	74	58	47	88	109	136	96	88	89	89	85	200		
S.Reserve Total		2154	2170	2083	1987	1892	1957	2123	2213	2154	2119	2216	2319	2301	2825	2587	2635	2452	2272	2332	2315	2167	2021	2028	1914	2185	2326	2415	2099	2281	1998	1985	2020	2016	1988	2041	2460	2705	2700	2513	1992	1893	1925	2054	2095	2302	2065	2076	2033		

DAILY OPERATION REVIEW



BAHAGIAN PENGHANTARAN

Noor Azmi Mohd Radzi

Prepared By
Date & Time of reporting
Date & Day of operation

02-Feb-17 7:05
01-Feb-17 Wednesday

Demand Time	Forecast	Actual	Difference	SR	TOTAL PRODUCTION KERTIH, JDA & RGT	
					Yesterday	Today
0400	10,530	10,846	2.91%	2461	1858	1899
1100	13,808	13,759	-0.36%	1688	59.6	60.2
1600	14,072	13,995	-0.55%	1688	54.0	55.0
2000	13,957	14,238	1.97%	1775	51.3	51.5
Energy	302.5	306.6	1.34%			

SGMT Gas pressure (bar)	
PLTG Gas pressure (bar)	
PLPS Gas pressure (bar)	
Planned (0000-2359)	873
NORMS (0000-2359)	848
NORMS (0600-0559)	880
Petronas (0600-0559)	870

Hydro	Lake level		
	Yesterday	Today	Difference
KNYR(m)	145.38	145.35	-0.03
TMGR	244.10	244.19	0.09
PGAU	634.45	634.78	0.33
JOR(H)	3498.30	3499.40	1.10
HTRG(m)	293.0	293.1	0.10

Hydro	Planned	Actual	Difference
Cumulative (Daily)			
KNYR	9.600	10.137	0.537
TMGR	0.700	0.827	0.127
PGAU	1.000	1.202	0.202
HTRG	0.200	0.065	-0.135
Cumulative (Weekly)			
KNYR	28.800	30.427	5.65%
TMGR	2.100	2.846	35.52%
Cumulative (Monthly)			
KNYR	1.202	10.137	743.34%
TMGR	1.170	0.827	-29.32%

Generator Tripping (from 0700 to 0700)				
Station	Unit	Time Out	Time In	Available

Forced Outage / Unit Derated / Available (from 0700 to 0700)					
Station	Unit	Time Out	Time In	Available	Cause (Gen Loss)
PKIG	G19	08:34	-	13:01	Forced outage due to gas stop valve faulty.
UPIA	U1,U2	10:00	-	19:15	Declared available after STSO.
SVPS	U2	22:00	-	02:53	Declared available after STSO.

Unscheduled Despatch/Testing (from 0700 to 0700)						
Station	Unit	Time Out	Time Start	Time Comp.	Fuel	Remark

Fuel Change Over (from 0700 to 0700)					
Station	Unit	Time In	Time Out	Fuel	Remark

Actual Load & Allocation				
Time	0200hrs	0300hrs	0400hrs	0500hrs
M/D	11656	11388	11241	11052
Allocation			1000	

Verified By:

Availability at Daily Maximum Demand Hour

ST-Coal	0 MW
ST-Gas	0 MW
ST-Oil	0 MW
Gas	3,289 MW
Hydro	2,509 MW
Distillate	0 MW
Total TNB	5,798 MW
Total IPP	15,527 MW
Total Co-Gen	40 MW
Total System	21,647 MW

Generation Mix

Type	MWh	Percentage
Gas	33,273	10.85 %
Hydro	16,898	5.51 %
Total TNB	50,171	16.36 %
ST-Coal	172,139	56.14 %
Gas	83,583	27.26 %
Total IPP	255,722	83.40 %
Co-Gen	1,165	0.38 %
Total Co-Gen	1,165	0.38 %
Total Generation	307,058	100.14 %
PLTG	-290	-0.09 %
HVDC	728	0.24 %
Interconnection	438	0.14 %
Net Energy	306,620	100.00 %

Maximum Demand Record

Date: 4/20/2016	17,788 MW
Date: 4/20/2016	372,457 MWH

Set On Bus, TNB, IPP And MD

Daily Maximum Demand Hour at:	20:00:00 Hour
Total Set On Bus	16,030 MW
TNB Generation	2,492 MW
IPP Generation	11,714 MW
Spinning Reserve	1,775 MW
Maximum Demand	14,238 MW
Net Energy	306,620 MWH
Load Factor	89.73 %

Fuel Cost

Total Cost:	48,626,667.10 RM
Cost per Unit	16.76 cents/kWH

Average Spinning Reserve During Peak Hour

Type	MW
GT	230
Hydro	189
Syncon	1,111
Thermal	216
Total	1,746

Time Weather Temperature

Afternoon	Hot	33
Morning	Sunny	27

Gas Usage

Station	(mmscfd)
CBPS	47
GLGR	54
PGPS	42
TJGS	109
Total TNB	253
CBPS	56
KLPP	102
MPSS	49
NPRI	155
PGLA	112
PLPS	37
SGRI	89
Total IPP	600
Total Gas	852
Total Gas Required	852

Alternate Fuel Usage

Station	(mmscfd)
Total	0

Hourly System MW Generation

	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
System Total	12480	11840	11476	11167	10846	10771	10962	11179	11346	12515	13258	13759	13764	13540	13845	13908	13995	13773	13066	13176	14238	14090	13794	13441

Daily MW Generation on Wednesday

Station	Unit	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300																								
SRev OCGT-Gas		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																								
SRev CCGT-Gas		355	457	402	471	424	539	654	566	595	729	615	609	441	544	595	503	344	667	540	282	291	128	173	223	275	174	249	231	144	200	198	159	173	163	284	308	512	696	658	216	163	208	260	240	268	167	248	353
SRev ST-Gas		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																								
SRev Co-Gen		11	10	12	12	11	11	12	11	13	11	11	11	10	10	10	13	9	9	11	11	11	12	12	12	14	12	14	12	13	13	12	13	12	13	10	11	12	11	11	10	11	13	13	11	11	10	10	11
Syncon		1252	1252	1252	1252	1252	1252	1252	1252	1252	1252	1252	1252	1252	1252	950	1252	1101	1101	1101	1101	1101	975	824	1101	1101	1101	1101	1101	1101	1101	1101	1101	1101	1101	1101	1252	1252	1252	1252	1252	1252	1101	1101	1252	1252	1252	1101	1252
Hydro		83	41	41	41	35	36	37	41	41	44	44	43	40	44	45	40	35	276	44	72	161	129	140	177	399	256	323	321	300	220	217	223	213	211	337	65	63	64	55	107	85	218	236	62	117	44	173	52
S.Reserve Total		2068	2104	2259	2371	2282	2402	2514	2424	2461	2483	2487	2491	2322	2432	2484	2383	2209	2436	2107	1733	1800	1575	1588	1557	1656	1636	1938	1877	1755	1744	1752	1699	1688	1684	1937	1897	2113	2275	2228	1848	1775	1798	1866	1826	1907	1786	1962	1998