



Market Surveillance Committee Monthly Market Assessment Report

26 April to 25 May 2021

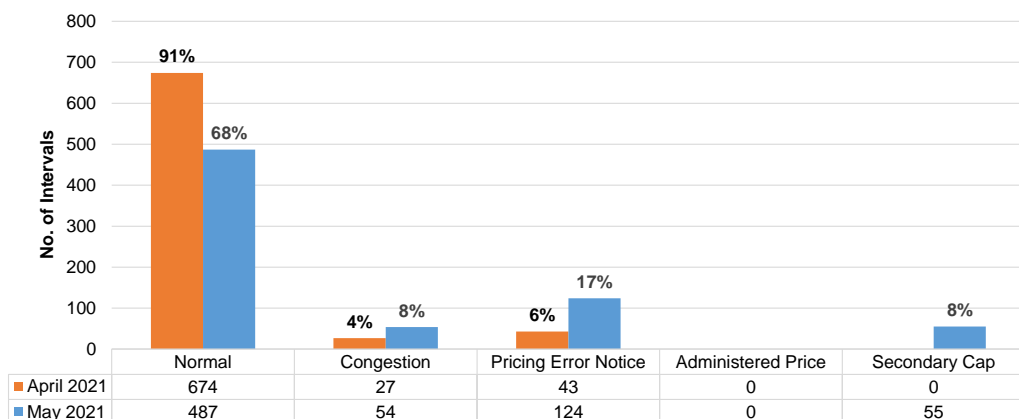
JUNE 2021

This Report is prepared by the
Philippine Electricity Market Corporation –
Market Assessment for the
Market Surveillance Committee

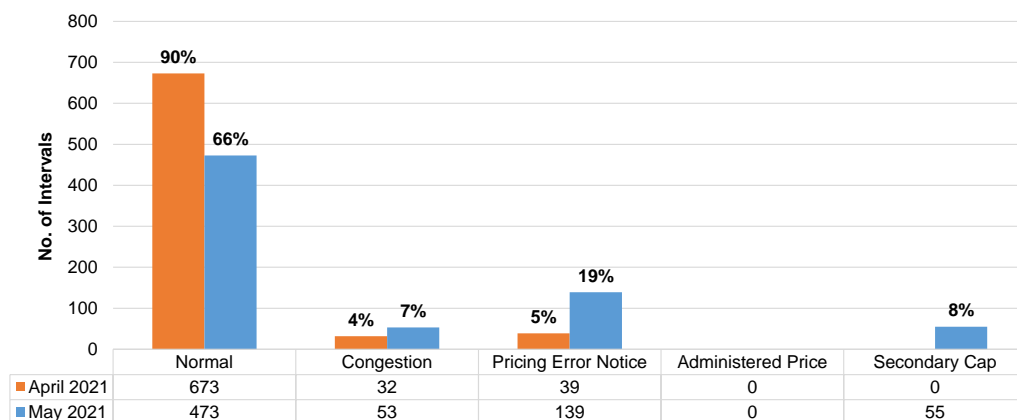
ASSESSMENT OF THE MARKET

SUMMARY OF PRICING CONDITIONS

LUZON



VISAYAS



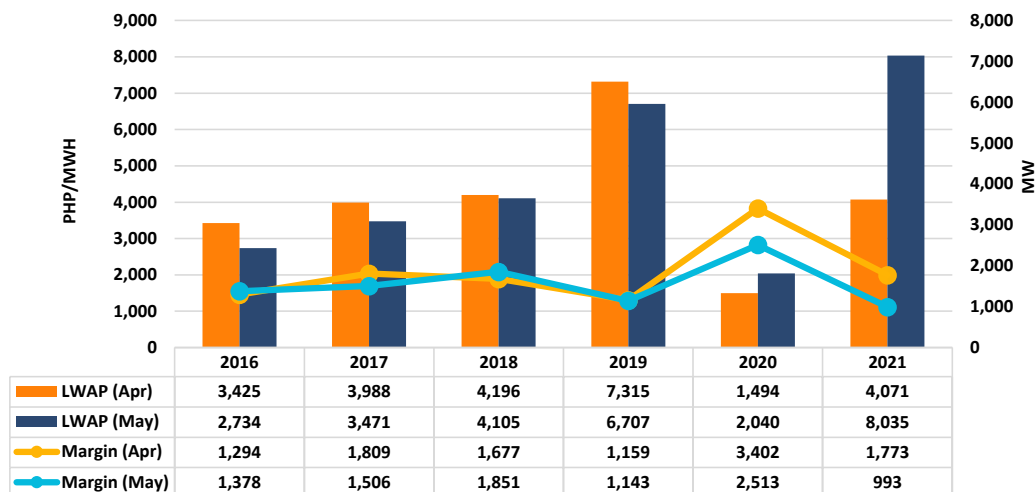
- The number of intervals imposed with Price Substitution Methodology (PSM) increased after observing more constraints from the Samboan-Amlan line than last month.
- Intervals with pricing error notices not caused by congestion majorly resulted from inappropriate input data affecting Luzon and Visayas prices and schedules
- Secondary price cap was imposed due to presence of high prices breaching the cumulative price threshold. This was last imposed on 22 June 2019.
- None of the intervals were imposed with administered prices

Notable Highlights:

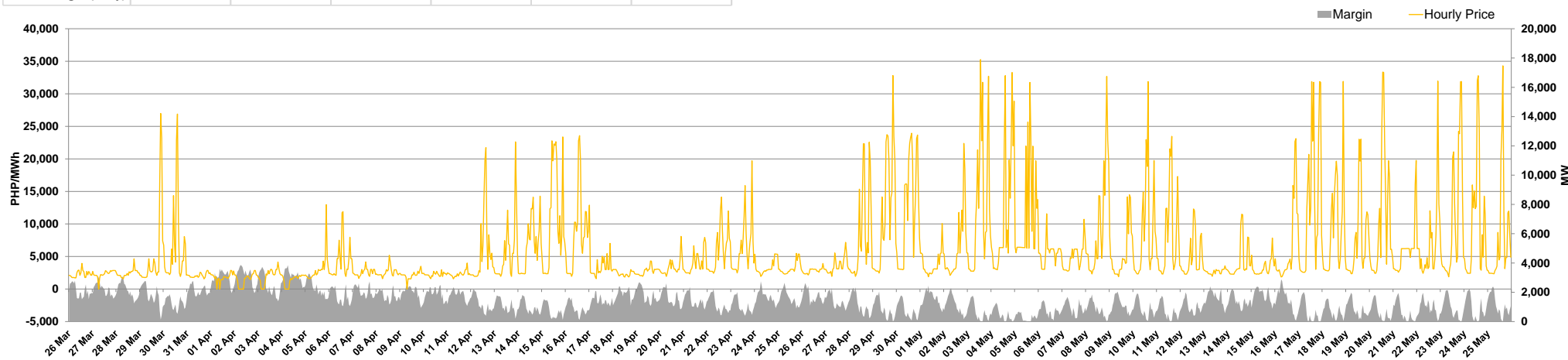
- Declining level of outage capacity*
 - An improvement from last month resulted to an average lower than 3,000 MW
- Deration in available capacity of Ilijan NGPP*
 - SPEX Malampaya gas supply restriction since 22 March 2021, 2200H
- Occurrence of price spikes and interesting pricing events*
 - Increase in generation from more expensive power plants resulting to high price signals
- Issuance of Yellow Grid Status Alert*
 - System Operator issued Yellow Alert in the Luzon Grid on 05 May 2021, 1400H-1500H

MARKET OUTCOME

PRICE AND SUPPLY MARGIN



- Monthly load weighted average price (LWAP) almost doubled from April to May 2021
- Monthly average supply margin narrowed by 44.0 percent, recording the lowest monthly average supply margin since January 2020
- Year-on-year comparison of LWAP in May showed an increase as demand proved to have a steeper growth than effective supply effectively resulting to a reduced supply margin



- Hourly resolution of LWAP saw the highest level at PHP35,266/MWh on 03 May 2021 (Monday) at 1400H due to one of the lowest levels of supply margin at 3.23 MW.
- Oil generation mix had a 4.7 percent increase over the course of the price spike events with a corresponding 4.3 percent decline from coal.
- As a result of the persistent high prices of electricity in the spot market, the secondary price cap was imposed for 55 intervals this month as the 120-hour rolling generator-weighted average price (GWAP) breached the cumulative price threshold of PHP9,000/MWh, effectively capping the market price at PHP6,245/MWh.

GENERATOR TRADING BEHAVIOR

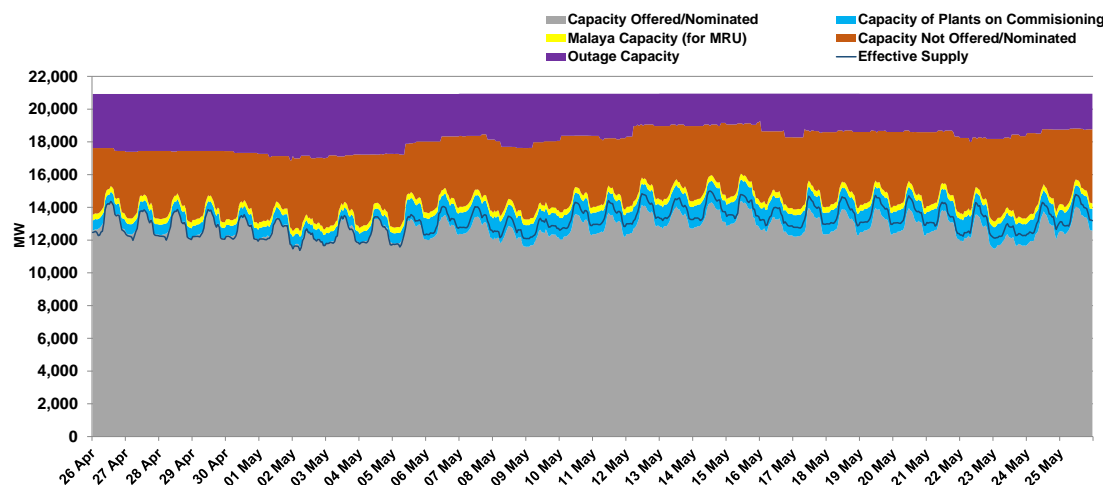
Plant Type	Offer Pattern		
	Ave Reference Price	Ave Subject Price	% Offer Price Inc/Dec
Battery	32,000	32,000	No Change
Coal	-1,717	-1,594	7%
Geothermal	-460	-466	-1%
Hydro	11,712	12,261	5%
Natural Gas	1,262	1,441	14%
Oil	19,731	19,476	-1%

- As one of the drivers of all interesting pricing events, coal, hydro, and natural gas plants recorded increases in average offer price
- Despite noting increases, coal and natural gas offered their capacities at a rate below PHP2,000/MWh on the average

Note: Reference prices refer to prices during intervals without breach of the threshold for supply margin-price index. Otherwise, all remaining prices are tagged as subject prices.

CAPACITY PROFILE

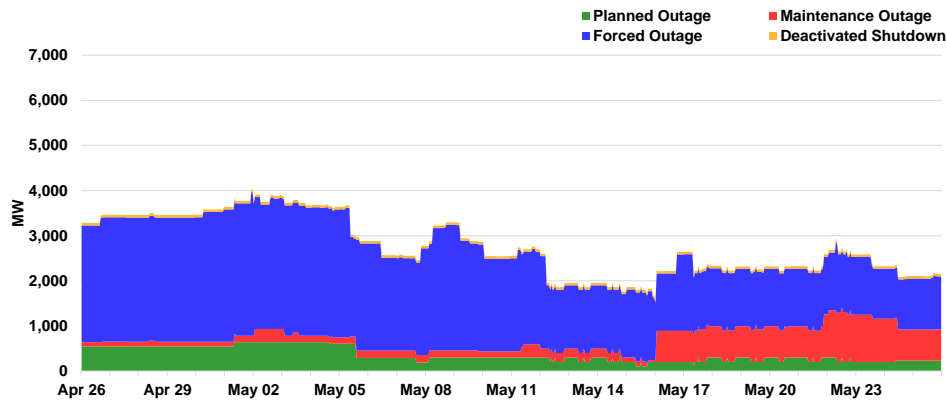
- The WESM registered capacity effectively increased by 14.4 MW, almost reaching the 21,000-MW mark from a total of 20,923.87 MW to 20,938.27 MW
 - Increase in maximum capacity of Sunwest Water and Electric Company 2, Inc. hydro plant from 8 MW to 8.1 MW
 - New registration of the 16-MW Ecopark Energy of Valenzuela Corp. solar plant and the Labayat 1 Hydropower Corporation hydro plant
 - Ceased registration of the 5-MW Pilipinas Shell Petroleum Corporation natural gas plant
- High level of capacities not offered at 3,903 MW or 19 percent came from natural gas (deration due to SPEX Malampaya supply restriction) and hydro plants (low water supply during dry season)
- Outage capacity continued to improve and accounted for an average 2,805 MW from last month's 3,276 MW
- Despite the instances of tight supply margin over the course of the month, the Malaya TPP unit 2 (350 MW) was not dispatched to augment the supply situation while Malaya TPP unit 1 (300 MW) was unavailable since May 2019



Note: Capacities not offered are further subject to validation and assessment of the PEMC-Enforcement and Compliance Office (ECO)

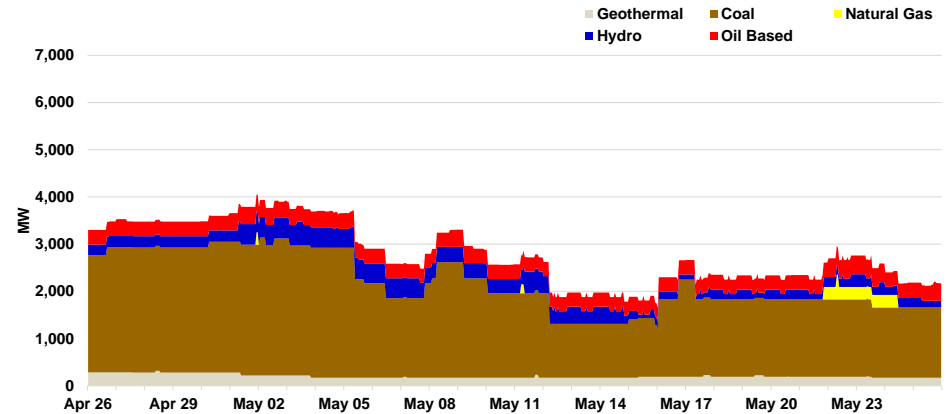
OUTAGE CAPACITY

BY OUTAGE CATEGORY



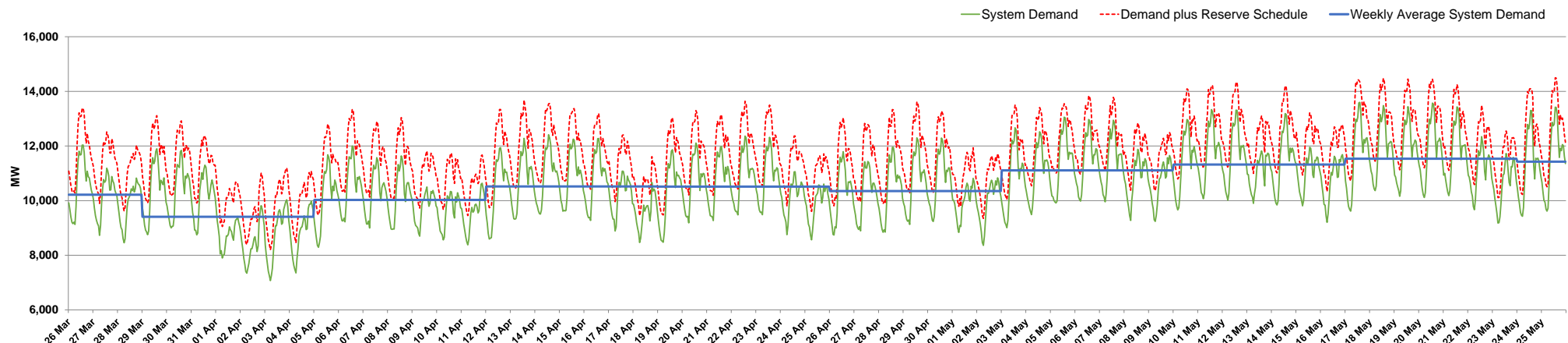
- Forced outages still dominated the outage mix with an average of 1,997 MW or 72 percent of the total
- Sual CFTPP unit 2 (647 MW) went on maintenance outage following its resumption from forced outage on 12 May

BY PLANT TYPE



- Coal plants significantly contributed to the level of planned, forced, and maintenance outages. For deactivated shutdown, geothermal plants remained to be the only plant type accounted
- The resumption in operations of Mariveles CFTPP unit 2 (316 MW) on 10 May, and the continuation of plant testing of GNP Dinginin CFTPP (668 MW) on 05 May restored a 984-MW available capacity to the grid.

SYSTEM DEMAND

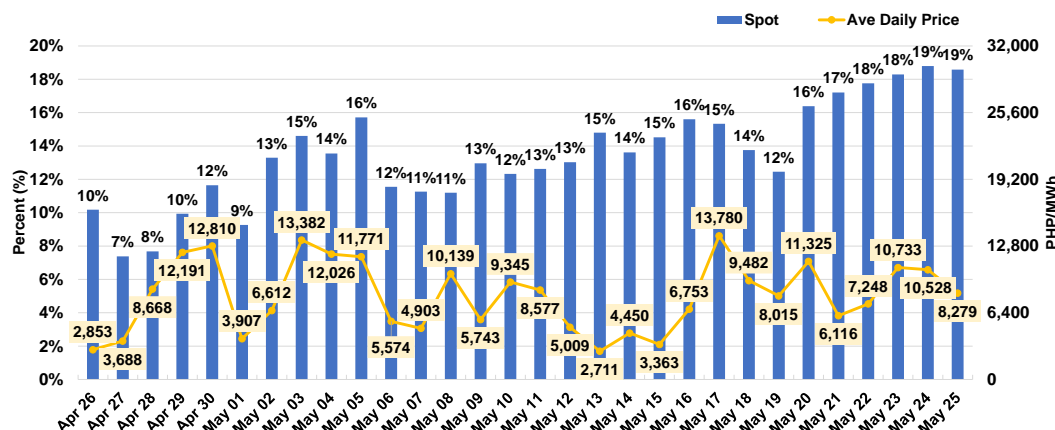
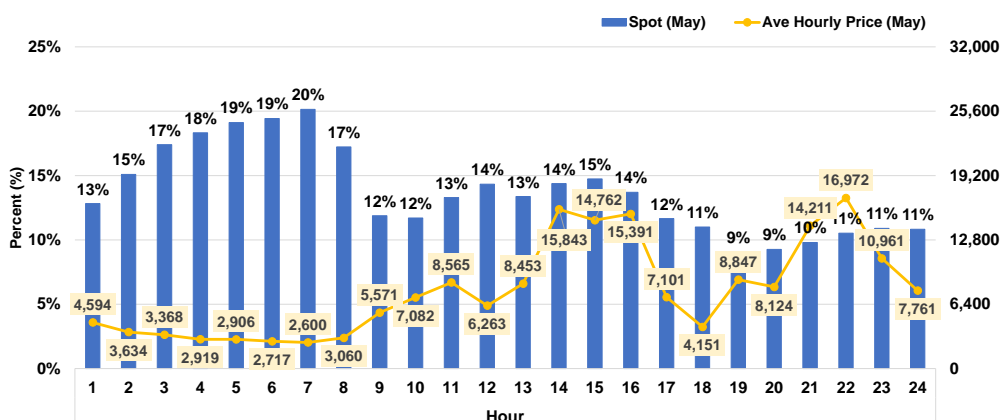


- Monthly system demand plus reserve schedule averaged at 12,141 MW, an almost 1,000-MW jump from last month's average of 11,284 MW
- System demand plus reserve schedule peaked at 14,498 MW on 25 May 2021, 1400H (Tuesday)
- System demand peaked at 13,598 MW on 17 May, 1500H (Monday), effectively surpassing the previous all-time highest at 13,378 MW on 21 June 2019, 1400H (Friday)
- On a yearly comparison, the demand plus reserve schedule surged by 17.9 percent from 10,299 MW in 2020. The low demand experienced in May 2020 was the result of the strict implementation of community quarantine as response to the Covid-19 pandemic
- With the slow recovery in supply and fast growth of demand, the electricity grid was put under Yellow Alert status on 05 May 2021 from 1400H to 1500H where the supply margin reached its lowest for the month as a result of thin reserves.

GENERATOR SPOT MARKET EXPOSURE

HOURLY

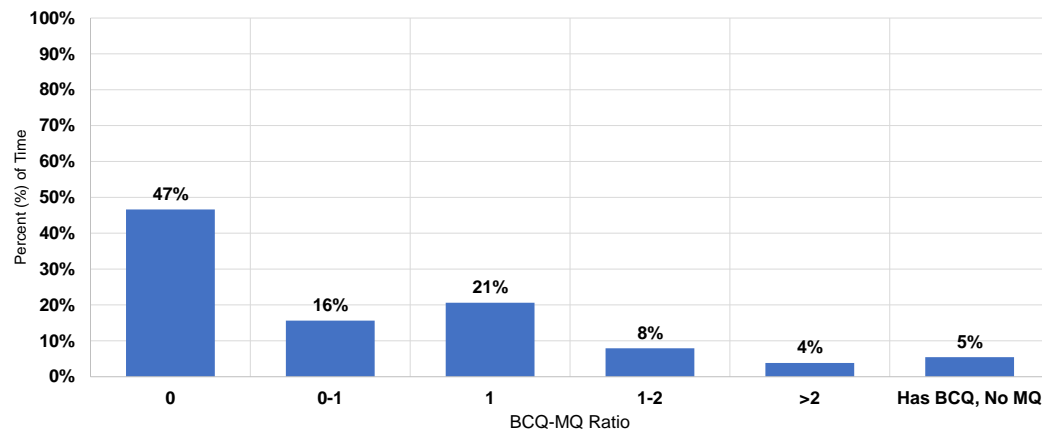
DAILY



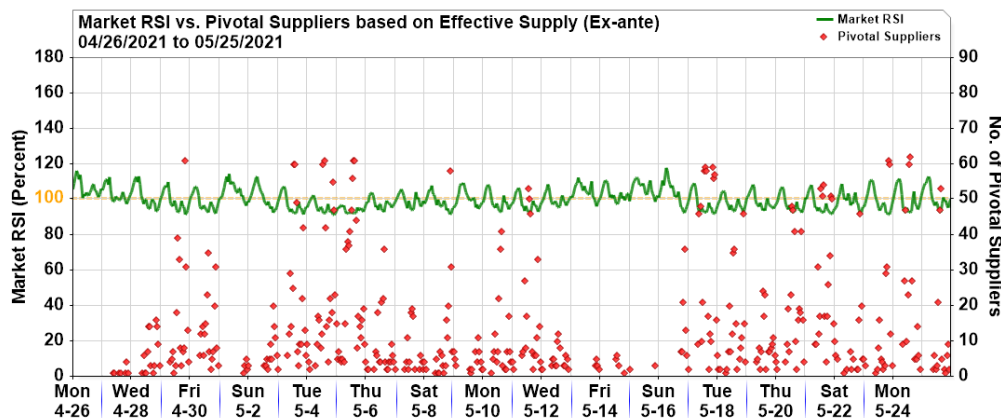
- Total spot quantities of generator participants in May stood at 13.6 percent of the total metered quantities, an increase from last month's 11.7 percent spot exposure
- Spot exposure in off-peak hours averaged at 15.1 percent, from previous month's 12.9 percent, while it was 12.3 percent, from previous month's 10.7 percent, during peak hours
- Lower spot shares were recorded during the hours where the market resulted in generally higher prices
- On a daily resolution, spot shares increased towards the end of the month where low outage capacity brought about more power supply for the grid

BCQ-MQ RATIO

- The resulting BCQ to MQ ratio of 0 demonstrates that the entire capacity of generators was being fully sold in the market at almost half of the time or 47 percent
- Meanwhile, roughly 21 percent of the total generator trading intervals had a BCQ to MQ ratio of 1 which resulted from all metered quantities being allocated to serve bilateral contract obligations
- About 5 percent were accounted for by generators which fully bought energy in the market to serve their bilateral contract obligations because of no generated MQ
- The remaining 28 percent accounted for BCQs consuming a fraction of their MQ (16 percent), declared BCQs up to twice their MQ (8 percent), and declared BCQs more than twice their MQ (4 percent)

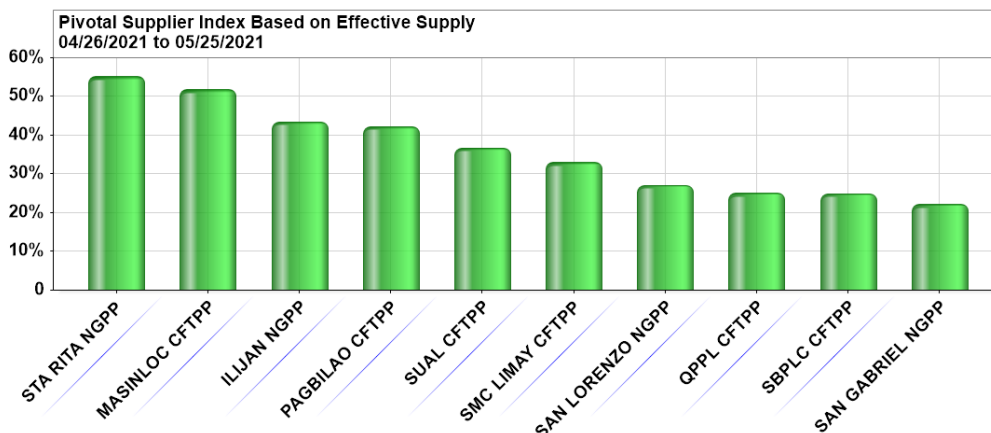


MARKET RSI



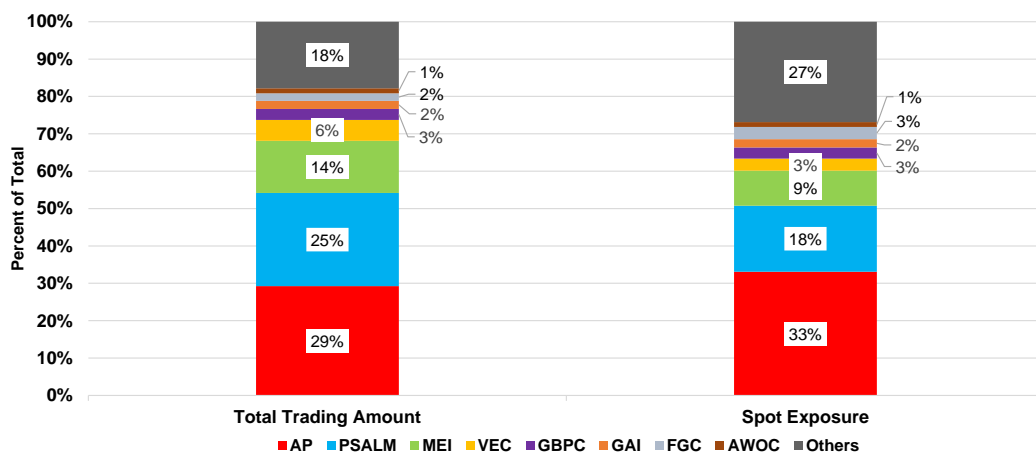
- Out of the 720 trading intervals in May 2021 billing month, more than half or 400 intervals had a Residual Supply Index (RSI) below the 100 percent mark which were evident during high prices in the market
- The average market prices for intervals with RSI below 100 percent was PHP11,611/MWh while those with RSI above 100 was PHP2,967/MWh

PIVOTAL PLANTS



- A total of 66 power plants were pivotal during the period with 43 coming from Luzon and 23 from Visayas
- Lima CCGT, Bauang DPP, and Navotas DPP were the top 3 out of 15 concurrent pivotal suppliers and price setters above PHP10,000/MWh for around 7.9 percent, 5.0 percent, and 3.6 percent of the time, respectively

TTA AND SPOT SHARE



- Aboitiz Power Corporation (AP) managed to obtain the highest TTA share of sellers in the market with approximately 29 percent
- Power Sector Assets and Liabilities and Management (PSALM) declined in rank and recorded the second highest TTA share of around 25 percent
- Despite the absence of San Miguel Corporation (SMC) in the top list of sellers, Millennium Energy, Inc. (MEI) placed third, ending with a 14 percent of TTA share
- The top 3 highest TTA shares also had incurred the highest spot shares

Annex A. List of Major Plant Outages

Region	Plant Type	Plant/ Unit Name	Capacity (MW)	Date Out	Date In	Duration (Days)	Outage Type	Remarks	Date Commissioned/ Commerical Operation
LUZON	GEO	Makban 6	55	04/11/2013 22:44			Deactivated Shutdown	Conducted gas compressor test	Apr 1979
LUZON	OIL	Malaya 1	300	05/03/2019 18:21			Forced Outage	Motorization of unit generator caused by the non-opening of phase B of PCB 8-	Aug 1975
VISAYAS	GEO	Upper Mahiao 3	32	07/22/2020 17:01			Maintenance Outage	Trip with Loss of Excitation. Economic Shutdown	Jul 1997
LUZON	COAL	Sual 2	647	09/16/2020 14:45	05/12/2021 4:58	237.59	Forced Outage	Tripped due to high turbine vibration	Oct 1999
LUZON	COAL	Calaca 2	300	12/03/2020 9:01			Forced Outage	Generator stator earth fault	Sep 1984
LUZON	COAL	GN Power 1	316	01/08/2021 18:26			Forced Outage	Boiler tube leak.	May 2013
VISAYAS	OIL	TPC Carmen 4	10	02/12/2021 9:47	05/06/2021 23:31	83.57	Forced Outage	TRIPPED DUE TO LOW ENGINE LO PRESSURE	Mar 1979
VISAYAS	COAL	CEDC 1	82	02/24/2021 0:52			Planned Outage	UNIT SHUTDOWN TO FACILITATE ANUAL PMS UNTIL 17 MARCH 2021	Apr 2010
LUZON	HYD	Bakun 1	37	03/06/2021 6:08			Maintenance Outage	Total Plant shutdown due to facilitate APM and other protection related activities	Feb 2001
VISAYAS	GEO	Nasulo	48.3	03/13/2021 15:53	05/03/2021 19:09	51.14	Forced Outage	Auto-tripped. affected by tripping of Main Transformer due to Tap Changer trouble	Apr 2014
LUZON	GEO	Makban 1	63.2	03/18/2021 21:14			Forced Outage	Steam supply diverted to Unit 2	Apr 1979
LUZON	COAL	GN Power 2	316	03/20/2021 0:58	05/05/2021 13:32	46.52	Planned Outage	Maintenance Outage	May 2013
LUZON	HYD	Magat 3	97	03/20/2021 7:01	05/22/2021 19:40	63.53	Planned Outage	Maintenance Outage	Oct 1983
LUZON	COAL	GNP Dingin 1	668	04/05/2021 14:55	05/05/2021 9:46	29.79	Forced Outage	Tripped out at 600MW. Commissioning Test Frequency-58.78hz	N/A
LUZON	HYD	Magat 4	97	04/13/2021 0:02	05/07/2021 15:30	24.64	Planned Outage	Maintenance outage under GOP.	Oct 1983
VISAYAS	COAL	Kepco Salcon 2	103	04/14/2021 21:29	05/14/2021 23:20	30.08	Forced Outage	SUSPECTED BOILER TUBE LEAK	Mar 2011
VISAYAS	COAL	CEDC 2	82	04/15/2021 0:29	05/05/2021 16:04	20.65	Forced Outage	PMS	Jun 2010
LUZON	GEO	Tiwi 1	60	04/15/2021 9:32	05/01/2021 8:12	15.94	Maintenance Outage	Supply steam to unit 2.(RECLASSIFIED FROM FORCE. OMC OUTAGE)	Jan 1979
LUZON	HYD	Ambuklao 3	35	04/17/2021 8:07	05/04/2021 17:03	17.37	Planned Outage	APM	Dec 1956
LUZON	COAL	SLPGC 2	150	04/21/2021 1:09	05/15/2021 21:51	24.86	Forced Outage	Boiler tube leak.	Jan 2015
VISAYAS	GEO	PGPPI Unit 1	37.5	04/23/2021 0:05	05/18/2021 17:26	25.72	Maintenance Outage	Offline due to PMS.	Aug 1983
VISAYAS	GEO	Mahanagdong A1	5	04/23/2021 0:19	04/27/2021 13:07	4.53	Maintenance Outage	PMS.	Jul 1997
VISAYAS	COAL	THVI 1	169	04/26/2021 15:18	05/02/2021 6:58	5.65	Forced Outage	TURBINE TRIPPED INDICATION	Dec 2017
LUZON	HYD	Masiway	12	04/26/2021 17:01			Maintenance Outage	APM	Jan 1981
VISAYAS	GEO	PGPPI Unit 2	37.5	04/28/2021 8:51	04/28/2021 12:02	0.13	Forced Outage	Auto-tripped due to Turbine Generator vibration very high.	Aug 1983
VISAYAS	OIL	Bohol 3	4.2	04/28/2021 10:40	04/28/2021 14:07	0.14	Forced Outage	Emergency cut-out due to fuel leak.	Sep 1978
LUZON	GEO	Makban 4	63.2	04/29/2021 6:32	04/29/2021 8:45	0.09	Forced Outage	Tripped at 45MW load due to low vacuum pressure.	Apr 1979
VISAYAS	OIL	TPVI 6	6.8	04/29/2021 21:16	04/30/2021 8:29	0.47	Forced Outage	FUEL LEAK	Aug 1977
LUZON	COAL	SLTEC 2	122.9	04/30/2021 5:01			Forced Outage	Tripped while on the process of de-loading due to steam leak at Heat Recovery Area front wall	Aug 2015
LUZON	OIL	SLPGC 3	25	04/30/2021 21:58	05/02/2021 16:48	1.78	Forced Outage	Tripped due to main fuel supply trouble	Mar 2017
LUZON	OIL	SLPGC 4	25	04/30/2021 21:58	05/02/2021 23:01	2.04	Forced Outage	Tripped due to main fuel supply trouble.	Mar 2017
VISAYAS	OIL	TPVI 2	6.7	04/30/2021 23:04	05/01/2021 22:26	0.97	Forced Outage	LOW COMBUSTION PRESSURE	Aug 1977
LUZON	HYD	Maris 2	4.3	05/01/2021 7:01	05/10/2021 16:19	9.39	Planned Outage	Maintenance outage as per GOMP	Oct 2017
LUZON	HYD	Magat 2	97	05/01/2021 7:04	05/14/2021 19:10	13.50	Planned Outage	Maintenance outage as per GOMP	Aug 1983
LUZON	HYD	Magat 1	97	05/01/2021 7:06	05/14/2021 18:20	13.47	Maintenance Outage	APM	Aug 1983
LUZON	HYD	Maris 1	4.3	05/01/2021 7:08	05/10/2021 19:13	9.50	Planned Outage	Maintenance outage as per GOMP	Oct 2017
LUZON	NATG	San Lorenzo 1	264.8	05/01/2021 21:35	05/01/2021 23:52	0.10	Forced Outage	High condenser vacuum pressure	Sep 2002
VISAYAS	COAL	PEDC 3	150	05/02/2021 0:42	05/03/2021 1:34	1.04	Maintenance Outage	For Maintenance.	Aug 2016
LUZON	COAL	SLPGC 1	150	05/02/2021 13:07	05/23/2021 12:28	20.97	Forced Outage	Emergency shutdown due to boiler tube leak	Jan 2015
VISAYAS	OIL	CENPRI 5	6.7	05/02/2021 13:54	05/03/2021 11:04	0.88	Forced Outage	Offline due to water leak. Declared available and on standby at 1911H.	May 2018
LUZON	OIL	SLPGC 3	25	05/02/2021 20:01	05/04/2021 18:12	1.92	Forced Outage	Failed start-up due to trouble at fuel booster pump.	Mar 2017
LUZON	HYD	Ambuklao 1	35	05/03/2021 8:03	05/03/2021 13:45	0.24	Maintenance Outage	Removal of stop logs	Dec 1956
LUZON	HYD	Ambuklao 2	35	05/03/2021 8:03	05/03/2021 13:45	0.24	Maintenance Outage	Removal of stop logs	Dec 1956
VISAYAS	OIL	TPVI 4	6.8	05/03/2021 21:07	05/04/2021 17:29	0.85	Forced Outage	CUT-OUT DUE TO LOW FIRING PRESSURE	Aug 1977
VISAYAS	OIL	TPVI 2	6.7	05/03/2021 23:32	05/04/2021 17:59	0.77	Forced Outage	CUT-OUT DUE TO LOW EXHAUST GAS TEMP. AT CYLINDER B6	Aug 1977
LUZON	OIL	SLPGC 3	25	05/04/2021 18:14	05/05/2021 13:58	0.82	Forced Outage	Fuel supply problem.	Mar 2017
VISAYAS	OIL	TPVI 6	6.8	05/04/2021 20:02	05/05/2021 2:41	0.28	Forced Outage	TRIPPED	Aug 1977
LUZON	HYD	Ambuklao 3	35	05/05/2021 1:18	05/05/2021 11:22	0.42	Forced Outage	Tripped due to lubrication system problem.	Dec 1956
LUZON	HYD	Botocan 1	10	05/05/2021 8:01	05/09/2021 19:34	4.48	Maintenance Outage	Maintenance Outage	Jan 1947
LUZON	HYD	Botocan 2	10	05/05/2021 8:01	05/09/2021 19:34	4.48	Maintenance Outage	Maintenance Outage	Jan 1947
LUZON	COAL	GN Power 2	316	05/05/2021 13:40	05/06/2021 11:18	0.90	Forced Outage	Tripped while on the process of load destabilization from start-up.	May 2013
LUZON	HYD	Kalayaan 4	180	05/05/2021 15:53	05/05/2021 16:14	0.01	Forced Outage	Tripped due to cooling water system trouble.	May 2004
VISAYAS	OIL	TPVI 4	6.8	05/06/2021 8:25	05/06/2021 10:55	0.10	Forced Outage	RTD	Aug 1977
LUZON	GEO	Bacman 3	20	05/07/2021 1:48	05/07/2021 4:15	0.10	Forced Outage	Governor system problem.	Sep 1993
LUZON	COAL	GN Power 2	316	05/07/2021 19:17	05/10/2021 1:36	2.26	Forced Outage	IDF high vibration.	May 2013
VISAYAS	COAL	Kepco Salcon 1	103	05/08/2021 2:34			Planned Outage	APMS	Nov 2010
LUZON	COAL	Masinloc 2	344	05/08/2021 5:14	05/09/2021 4:37	0.97	Forced Outage	Emergency shutdown due to de-railed drag chain conveyor.	Jun 1998
LUZON	OIL	Limay 1	60	05/08/2021 16:08	05/09/2021 12:27	0.85	Forced Outage	Blow off valve air leak trouble.	May 1993
VISAYAS	OIL	Bohol 3	4.2	05/08/2021 21:40	05/10/2021 10:05	1.52	Forced Outage	Over voltage.	Sep 1978
VISAYAS	OIL	CENPRI 3	4.5	05/10/2021 18:57	05/11/2021 11:02	0.67	Forced Outage	Offline due to water cooler leakage.	Mar 2016
VISAYAS	OIL	TPVI 1	6.7	05/10/2021 21:55	05/10/2021 23:15	0.06	Forced Outage	Emergency Stopped due to Load Fluctuation.	Aug 1977
VISAYAS	OIL	TPVI 2	6.7	05/10/2021 21:55	05/10/2021 22:22	0.02	Forced Outage	Emergency Stopped due to Load Fluctuation	Aug 1977
VISAYAS	OIL	TPVI 3	6.8	05/10/2021 21:55	05/10/2021 23:22	0.06	Forced Outage	Emergency Stopped due to Load Fluctuation.	Aug 1977
VISAYAS	OIL	TPVI 4	6.8	05/10/2021 21:55	05/10/2021 22:33	0.03	Forced Outage	Emergency Stopped due to Load Fluctuation.	Aug 1977
VISAYAS	OIL	TPVI 5	6.8	05/10/2021 21:55	05/11/2021 21:19	0.97	Forced Outage	Emergency Stopped due to Load Fluctuation.	Aug 1977
VISAYAS	OIL	TPVI 6	6.8	05/10/2021 21:55	05/10/2021 22:33	0.03	Forced Outage	Emergency Stopped due to Load Fluctuation.	Aug 1977
LUZON	NATG	Ilijan A1	190	05/11/2021 4:50	05/11/2021 7:10	0.10	Forced Outage	Blade path variation temperature problem(turbine side)..	Jun 2002
LUZON	HYD	Magat 4	97	05/11/2021 7:10	05/11/2021 23:30	0.68	Maintenance Outage	Internal blackstart test of Magat U3	Oct 1983
LUZON	HYD	Pantabangan 1	60	05/11/2021 9:01	05/15/2021 16:01	4.29	Maintenance Outage	APM	Dec 2009
LUZON	GEO	Makban 4	63.2	05/11/2021 16:21	05/11/2021 19:08	0.12	Forced Outage	Emergency shutdown for troubleshooting of Main Transformer Buchholz relay	Apr 1979
VISAYAS	OIL	TPVI 6	6.8	05/11/2021 19:42	05/11/2021 20:27	0.03	Forced Outage	Governor Problem	Aug 1977
VISAYAS	COAL	Kepco Salcon 2	103	05/14/2021 23:21	05/15/2021 23:18	1.00	Forced Outage	AFFECTED BY TRIPPING OF 7XFO2KSP TRANSFORMER	Mar 2011
LUZON	GEO	Makban 10	20	05/15/2021 7:13	05/23/2021 9:18	8.09	Forced Outage	Unplanned outage to facilitate replacement of ruptured disc.	Apr 1979
LUZON	COAL	Sual 2	647	05/16/2021 0:28			Maintenance Outage	To correct the problem at pressure control valve of gland steam	Oct 1999
LUZON	COAL	Pagbilao 3	420	05/16/2021 17:51	05/17/2021 7:17	0.56	Forced Outage	Main Steam Valve (MSV) failed to open.	Jul 2017
VISAYAS	OIL	TPVI 2	6.7	05/16/2021 18:40	05/18/2021 9:18	1.61	Forced Outage	EMERGENCY CUT-OUT DUE TO LOW EXHAUST GAS TEMPERATURE	Aug 1977
LUZON	HYD	Angat M 1	50	05/17/2021 8:01			Planned Outage	APMT of Transformer A	Oct 1967
LUZON	HYD	Angat M 2	50	05/17/2021 8:01			Planned Outage	APMT of Transformer A	Oct 1967
VISAYAS	OIL	TPVI 6	6.8	05/17/2021 9:09	05/17/2021 17:48	0.36	Forced Outage	LUBE OIL LEAK AT CYLB1	Aug 1977
VISAYAS	GEO	PGPPI Unit 2	37.5	05/17/2021 13:55	05/17/2021 21:05	0.30	Forced Outage	Auto-tripped. ongoing investigation on the cause of tripping.	Aug 1983
VISAYAS	OIL	CENPRI 4	6.7	05/17/2021 20:03	05/18/2021 20:03	1.00	Forced Outage	Unable to cut-in due to turbo charger problem	Mar 2016
VISAYAS	GEO	PGPPI Unit 1	37.5	05/18/2021 19:26	05/19/2021 15:14	0.83	Maintenance Outage	Offline. Under maintenance	Aug 1983
VISAYAS	GEO	Upper Mahiao 1	32	05/19/2021 9:15	05/19/2021 17:02	0.32	Maintenance Outage	Emergency Shutdown due to condensate line link repair scheduled for 4-Shrs	Jul 1997
VISAYAS	GEO	PGPPI Unit 1	37.5	05/19/2021 16:32	05/19/2021 19:25	0.12	Maintenance Outage	Offline. under test and commissioning	Aug 1983
VISAYAS	GEO	PGPPI Unit 1	37.5	05/19/2021 21:07	05/21/2021 0:06	1.12	Maintenance Outage	Offline. under test and commissioning	Aug 1983
VISAYAS	GEO	Mahanagdong B1	5	05/20/2021 13:29	05/20/2021 14:06	0.03	Forced Outage	Underassessment. Load is 51.36MW	Jul 1997

Region	Plant Type	Plant/ Unit Name	Capacity (MW)	Date Out	Date In	Duration (Days)	Outage Type	Remarks	Date Commissioned/ Commerical Operation
VISAYAS	OIL	TPVI 3	6.8	05/20/2021 13:49			Forced Outage	EMERGENCY CUT-OUT DUE TO CUT-OFF STUD BOLT	Aug 1977
LUZON	HYD	Binga 1	35	05/20/2021 20:45	05/20/2021 21:13	0.02	Forced Outage	Coincide with the tripping Ambuklao-Binga 230kV L1	Jan 1960
LUZON	HYD	Binga 2	35	05/20/2021 20:45	05/20/2021 21:13	0.02	Forced Outage	Coincide with the tripping Ambuklao-Binga 230kV L1	Jan 1960
VISAYAS	GEO	PGPP1 Unit 1	37.5	05/21/2021 1:34	05/21/2021 19:03	0.73	Maintenance Outage	Offline, under test and commissioning.	Aug 1983
VISAYAS	COAL	TPC Sangi 2	85	05/21/2021 13:28	05/21/2021 18:42	0.22	Forced Outage	TPC SANGI TGS TRIPPED DUE TO HIGH TEMPERATURE OF BEARING NO. 2	Dec 2013
LUZON	HYD	Ambuklao 1	35	05/21/2021 15:42	05/21/2021 16:41	0.04	Forced Outage	Lost of DC supply.	Dec 1956
LUZON	HYD	Ambuklao 2	35	05/21/2021 15:42	05/21/2021 16:41	0.04	Forced Outage	Lost of DC supply.	Dec 1956
LUZON	HYD	Ambuklao 3	35	05/21/2021 15:42	05/21/2021 16:41	0.04	Forced Outage	Lost of DC supply.	Dec 1956
LUZON	NATG	San Lorenzo 1	264.8	05/21/2021 20:36	05/24/2021 11:58	2.64	Maintenance Outage	Maintenance Outage until 24 May 2021.	Sep 2002
VISAYAS	GEO	PGPP1 Unit 1	37.5	05/21/2021 21:49	05/21/2021 22:20	0.02	Maintenance Outage	Auto-tripped, under test and commissioning.	Aug 1983
LUZON	OIL	Limay 4	90	05/22/2021 0:01	05/23/2021 13:40	1.57	Maintenance Outage	Electrical testing and inspection until 23 May 2021	May 1993
VISAYAS	GEO	PGPP1 Unit 1	37.5	05/22/2021 3:46	05/22/2021 4:36	0.03	Maintenance Outage	Offline, under test and commissioning.	Aug 1983
VISAYAS	GEO	PGPP1 Unit 1	37.5	05/22/2021 4:47	05/22/2021 5:04	0.01	Maintenance Outage	Offline, under test and commissioning.	Aug 1983
LUZON	NATG	San Lorenzo 2	261.8	05/22/2021 6:40	05/22/2021 8:18	0.07	Forced Outage	Tripped due to activation of System Protection.	Sep 2002
LUZON	HYD	Pantabangan 2	60	05/22/2021 8:13	05/22/2021 16:41	0.35	Maintenance Outage	APM	Dec 2010
LUZON	OIL	Limay 5	60	05/22/2021 13:03	05/22/2021 16:27	0.14	Forced Outage	Declared unavailable due to 125VDC power supply failure	Dec 1994
VISAYAS	COAL	TPC Sangi 2	85	05/23/2021 0:17			Forced Outage	TGS OFFLINE DUE HIGH VIBRATION BEARING 5	Dec 2013
LUZON	GEO	Bacman 3	20	05/23/2021 8:10	05/23/2021 12:14	0.17	Forced Outage	Control Valve Oil leak.	Sep 1993
VISAYAS	GEO	PGPP1 Unit 1	37.5	05/23/2021 13:12	05/24/2021 23:01	1.41	Maintenance Outage	Offline, under test and commissioning.	Aug 1983
LUZON	HYD	Caliraya 1	14	05/24/2021 8:01			Planned Outage	Semi-Annual Maintenance shutdown	Oct 2002
LUZON	HYD	Caliraya 2	14	05/24/2021 8:01			Planned Outage	Semi-Annual Maintenance.	Oct 2002
VISAYAS	OIL	TPVI 5	6.8	05/24/2021 15:33			Forced Outage	CUT-OUT DUE TO BROKEN STUD BOLT	Aug 1977
VISAYAS	OIL	TPVI 1	6.7	05/24/2021 17:54	05/25/2021 10:15		Forced Outage	GENERATOR PROBLEM	Aug 1977
VISAYAS	OIL	TPVI 2	6.7	05/24/2021 17:54	05/25/2021 20:06		Forced Outage	GENERATOR PROBLEM	Aug 1977
VISAYAS	GEO	PGPP1 Unit 1	37.5	05/24/2021 23:02	05/25/2021 0:08		Forced Outage	Auto-tripped with indication-- Bearing Temperature Very High.	Aug 1983
VISAYAS	GEO	PGPP1 Unit 1	37.5	05/25/2021 9:36	05/25/2021 23:49		Maintenance Outage	Offline, under test and commissioning.	Aug 1983
LUZON	OIL	SLPGC 4	25	05/25/2021 14:08	05/25/2021 17:28		Forced Outage	Tripped due to oil leakage	Mar 2017
LUZON	OIL	Limay 7	60	05/25/2021 16:23			Forced Outage	Declared unavailable due to fuel valve malfunction	Dec 1994