

MAG-MMAR-2020-05

MONTHLY MARKET ASSESSMENT REPORT

For the Billing Period 26 April to 25 May 2020



**PHILIPPINE
ELECTRICITY
MARKET
CORPORATION**

**MARKET ASSESSMENT GROUP
(MAG)**

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Monthly Market Assessment Report for May 2020 Billing Month

1. Assessment of the Market

- Majority of the time or 92.5 percent of the total market price outcomes in May 2020 was a result of normal pricing condition, almost similar to last April's 91.7 percent
- The remainder, however, required other forms of pricing methodologies
 - Price Substitution Methodology was applied to a low 4 percent of the outcomes which the majority was due to frequent congestion events on Samboan-Amlan line 1
 - Prices with pricing error occurred around 3.5 percent of the time as a result of inappropriate input data affecting Luzon and Visayas' prices and schedules
- None of the intervals were imposed with administered prices and secondary price caps

Table 1. Summary of Pricing Conditions (Ex-ante), May 2020

Pricing Condition	No. of Intervals			
	Luzon	% of Time	Visayas	% of Time
Normal	666	92.5%	666	92.5%
Congestion	29	4.0%	29	4.0%
Pricing Error Notice	25	3.5%	25	3.5%
Administered Price	0	0%	0	0%
Secondary Cap	0	0%	0	0%
Total	720	100%	720	100%

- For intervals under normal condition, an increase in the price pattern was observed due to the interaction between the supply and demand as a result of a more relaxed protocol for the Modified Enhanced Community Quarantine (MECQ) and General Community Quarantine (GCQ) implementation
- Supply situation saw a slight improvement driven by the higher generation from coal plants this month while demand was gradually increasing but still on an unusual lower level unlike the normal May months with high demand in past years

Notable Highlight/s:

1. Demand slightly regaining normalcy
 - Observance of increase in system demand upon implementation of MECQ and GCQ in the country
2. Reduction in demand on 15 to 16 May
 - Typhoon Ambo hit parts of Luzon and Visayas rendering several 69 kV and 230 kV lines unavailable along its path
3. Occurrence of a price spike event
 - A price spike was recorded on 25 May, 2200H breaching the price threshold level for off-peak hours during hot dry season

Market Outcome

1.1. Price

1.1.1. Price and Supply Margin

- On 16 May, the transition of high-risk areas to the Modified Enhanced Community Quarantine (MECQ), and low-risk areas to General Community Quarantine (GCQ) resulted to gradual increase in market price which was evident in the latter part of the May billing month
- Load-weighted average price (LWAP) of May 2020 at PhP2,040/MWh was the lowest recorded monthly price in the previous 5 years (2015-2019) for any month
- An average supply margin at 2,513 MW for May 2020 was noted to have been the highest recorded supply margin in all of May for the past 5 years
- As monthly average supply margin was soaring high, an opposite trend was observed in the average market price in contrast with years past

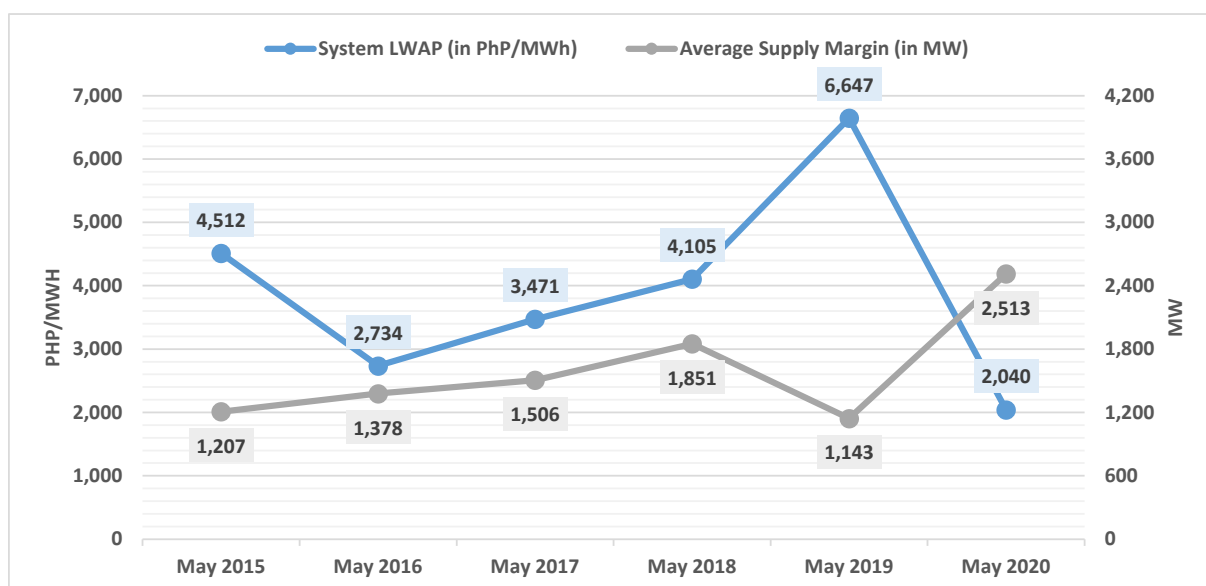


Figure 1. System LWAP and Supply Margin, May 2015-2020

- Monthly load weighted average price (LWAP) increased by 36.6% as compared to April
 - Monthly average peak prices increased by 23.0% from PhP1,511/MWh to PhP1,859/MWh
 - Monthly average off-peak prices increased by 48.3% from PhP1,479 to PhP2,194/MWh
- A price spike¹ event was recorded on 25 May 2020 during the off-peak interval 22 at a generator-weighted average price (GWAP) of PhP20,077/MWh

¹ Price spike refers to the significant upward movement of prices brought about by high-priced generation offers breaching the set threshold for peak and off-peak hours in a season

- The average supply margin, given that previous month was already high to begin with, indicates an unusual level of supply margin during this hot dry season
- The LWAP was seen to have gradually increased in the latter part of the month despite the resulting low and unusual level of market price during the hot dry season due to the increase in demand as the country transitioned to MECQ and GCQ
- Average supply margin narrowed by 26.1 percent from 3,402 MW in April 2020 to 2,513 MW in May 2020

Table 2. System LWAP and Supply Margin, Apr and May 2015-2020

Year	Month	Average Supply Margin	% Change in Average Supply Margin	System LWAP	% Change in System LWAP
2015	April	1,521	-21%	2,824	60%
	May	1,207		4,512	
2016	April	1,294	6%	3,425	-20%
	May	1,378		2,734	
2017	April	1,809	-17%	3,988	-13%
	May	1,506		3,471	
2018	April	1,677	10%	4,196	-2%
	May	1,851		4,105	
2019	April	1,159	-1%	7,315	-9%
	May	1,143		6,647	
2020	April	3,402	-26%	1,494	37%
	May	2,513		2,040	

- Hourly resolution of supply margin showed the lowest recorded supply margin at 520 MW on 25 May 2020 2200H as a combined result of the high plant outage reaching 3,365 MW and the increasing level of demand towards the end of the billing month
- Also, occurring on the same date and interval was the highest hourly LWAP recorded in the market for May 2020 at PhP20,465/MWh
- Due to sufficient level of supply to satisfy the demand, majority of the hourly prices was seen below PhP4,000/MWh for 699 intervals or 97 percent of the time
- Since the implementation of the MECQ and GCQ on 16 May, prices during the May billing month climbed by 74.4 percent from an average of PhP1,629/MWh prior the transition to PhP2,840/MWh

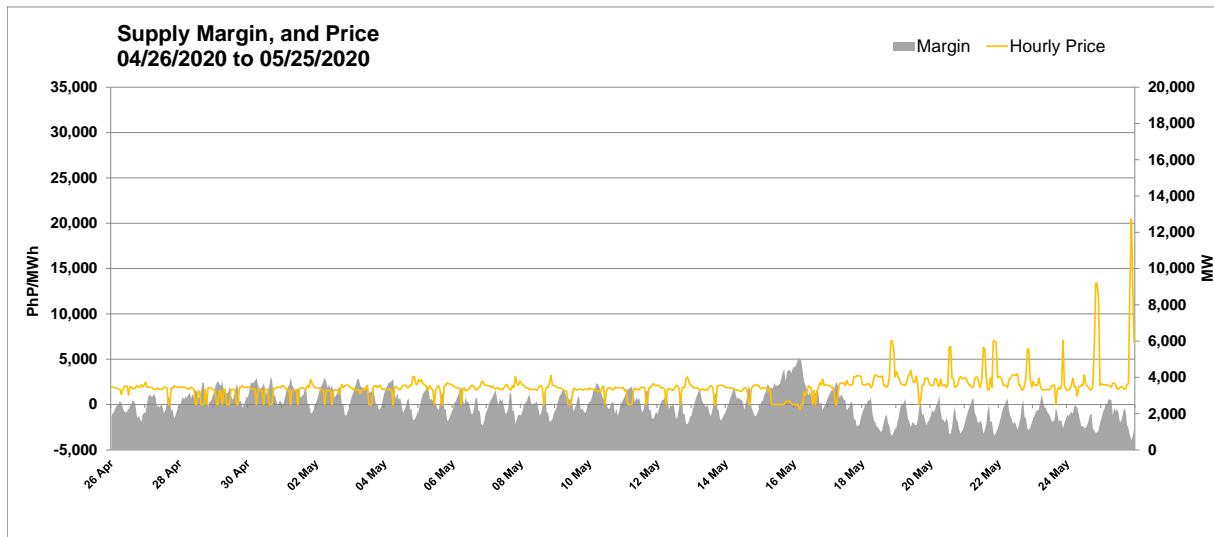


Figure 2. Supply Margin and Price, May 2020

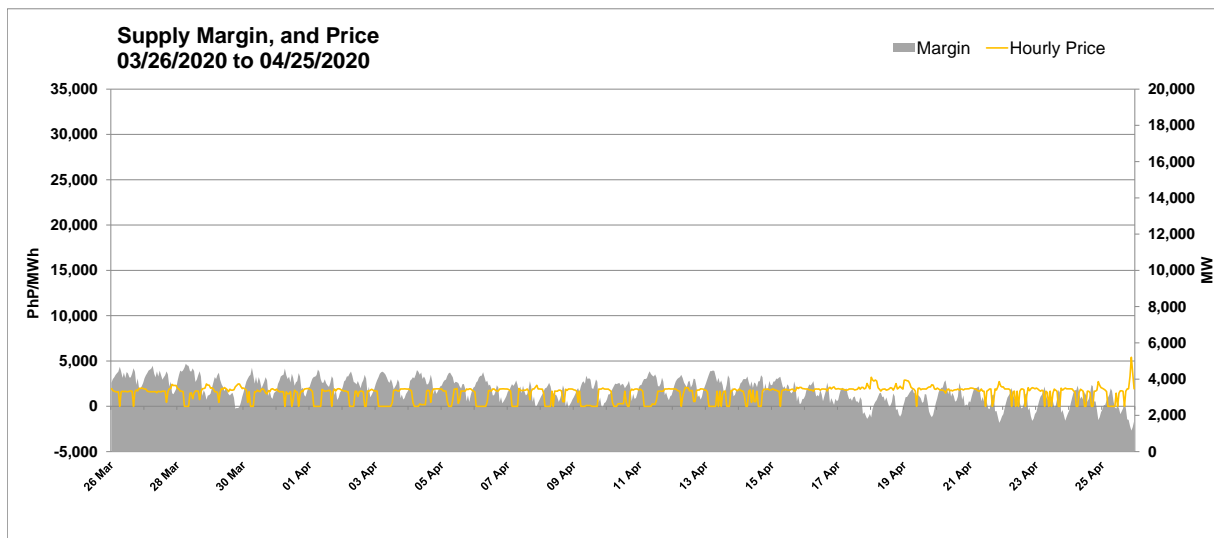


Figure 3. Supply Margin and Price, April 2020

1.1.2. Price Duration Curve²

- For peak and off-peak hours, about 90 percent of the load nodal prices in May fell below PhP2,737/MWh while distribution of prices in April were seen to be below PhP2,057/MWh about the same percentage of time.
- Maximum off-peak and peak load nodal price reached PhP16,282/MWh and PhP8,029/MWh in May, respectively
- Most of the high nodal prices found in the range of PhP5,000/MWh to PhP8,000/MWh for peak hours and PhP11,500/MWh to PhP16,500/MWh for off-peak hours were the result of the transition to MECQ and GCQ

² Nodal prices under normal pricing condition are used and are subject to change upon final validation of prices

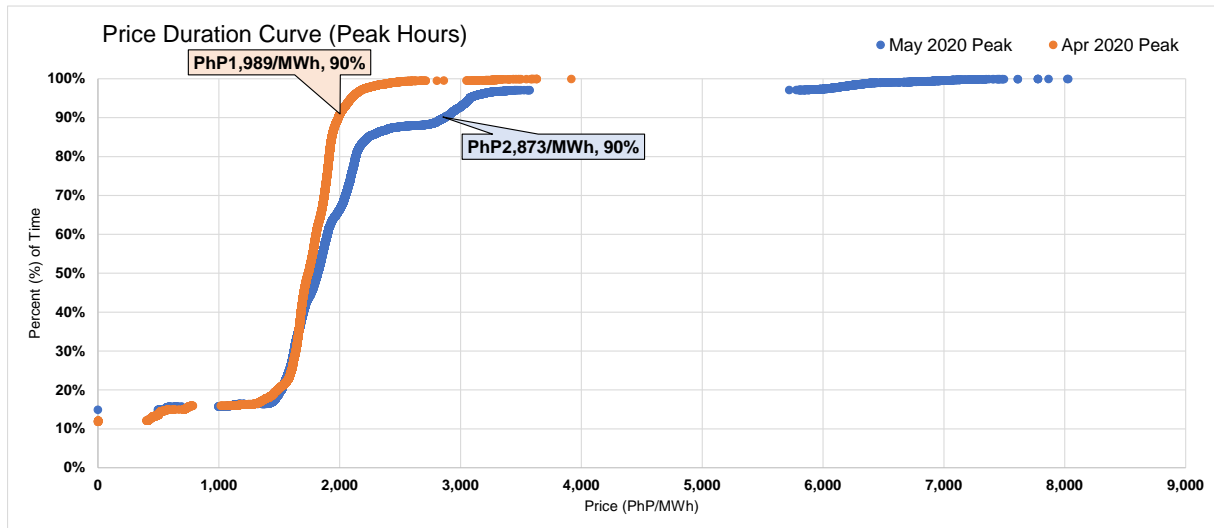


Figure 4. Load Nodal Price Duration Curve (Peak), Apr 2020 and May 2020

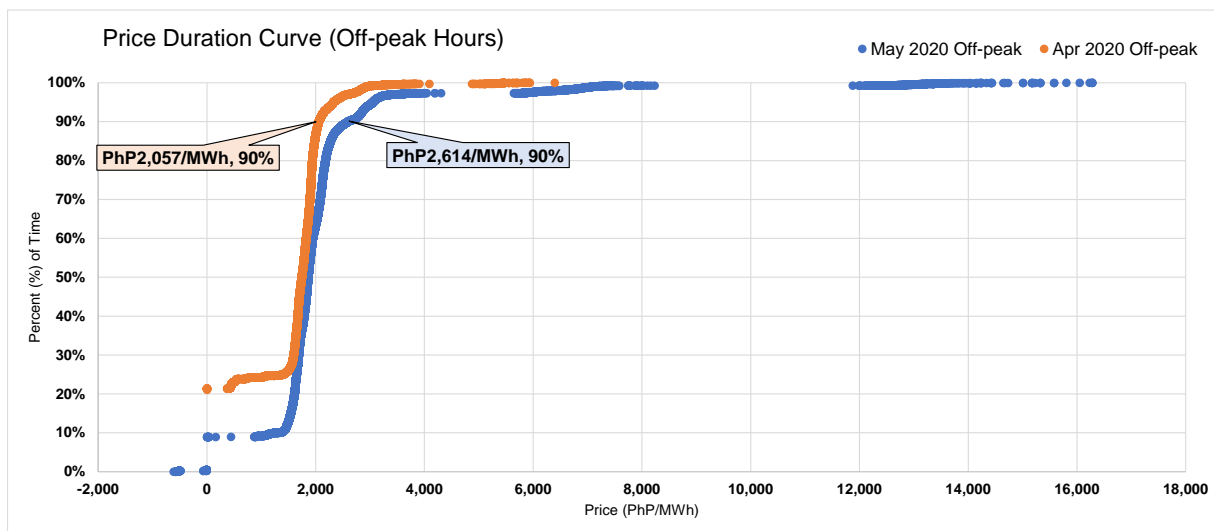


Figure 5. Load Nodal Price Duration Curve (Off-peak), Apr 2020 and May 2020

1.2. Supply

- A decrease of 1.2 MW for this month from a total of 20,191.97 MW to 20,190.77 MW was recorded in the WESM registered capacity
 - Change in capacity of San Jose I Power Corporation biomass plant from 12 MW to 10.8 MW
- Available capacity³ constituted an average of 14,529 MW or 72 percent of the total registered capacity
- Although there was a decrease in available capacity as a consequence of higher outages recorded this month, this coincided with the persistent low

³ Available capacity refers to the aggregate of Capacity Offered/Nominated, Malaya Capacity for MRU, and Capacity of Plants on Testing and Commissioning

demand experienced during ECQ period offsetting what could have been a price increase effect

- Capacity not offered comprised an average of 2,700 MW or 13 percent
- Outage capacity accounted for an average of 2,962 MW or 15 percent

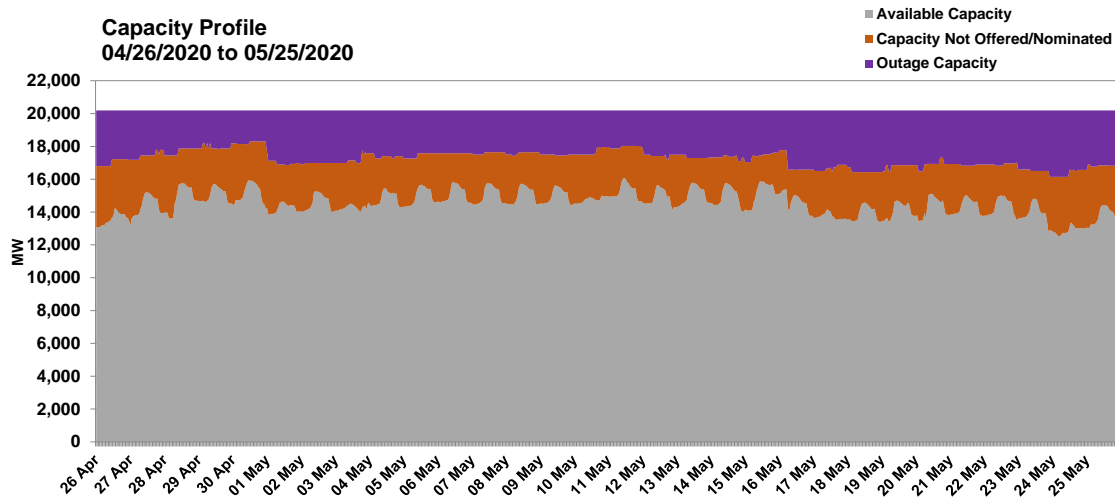


Figure 6. Capacity Profile, May 2020

1.2.1. Outage Capacity⁴

- Outage capacity significantly increased by 13 percent from an average of 2,630 MW last month to an average of 2,962 MW this month
- Planned outages comprised only 461 MW or 16 percent of the total outages. Majority or about 80 percent was composed of forced outages averaging at 2,233 MW, and maintenance outages constituted 51 MW or 2 percent of the total outages. Meanwhile, deactivated shutdown accounted for only about 55 MW or 2 percent of the outages.
- Closing level of total outages for the month was 3,365 MW, almost similar from its opening level of 3,390 MW
- Majority of the outages based on outage category was dominated by coal plants, which was followed by geothermal and hydro plants

Table 3. Outage Factor by Plant Type and Outage Category, May 2020

Plant Type	Planned Outage	Forced Outage	Maintenance Outage	Deactivated Shutdown
Coal	74%	71%	89%	0%
Natural Gas	0%	2%	0%	0%
Geothermal	0%	13%	11%	100%
Hydro	26%	0.4%	0%	0%
Oil-based	0%	14%	0%	0%
TOTAL	100%	100%	100%	100%

⁴ Notable plants on outage are detailed in the Annex

- Planned outages had a noticeable increase of about 54 percent owing to the planned outages of San Roque HEPP unit 1 (145 MW), CEDC CFTPP unit 2 (82 MW), and Angat HEP Main (50 MW) on top of the persistent outage from last month of SLPGC CFTPP unit 2 (150 MW) and SMC CFTPP unit 3 (150 MW)
- Forced outages this month were almost of the same level as last month's average of 2,253 MW
- A spike in level of forced outages on 01 May was brought about by the outage of Sual CFTPP unit 2 (647 MW). Meanwhile, on 16 May, the spike was caused by the tripping of all Pagbilao CFTPP units (1,184 MW) as the havoc of Typhoon Ambo led to the unavailability of the Tayabas-Pagbilao 230 KV lines 1 and 2
- Maintenance outage was evident only starting 23 May which was attributable to the outage of SBPL CFTPP (455 MW)

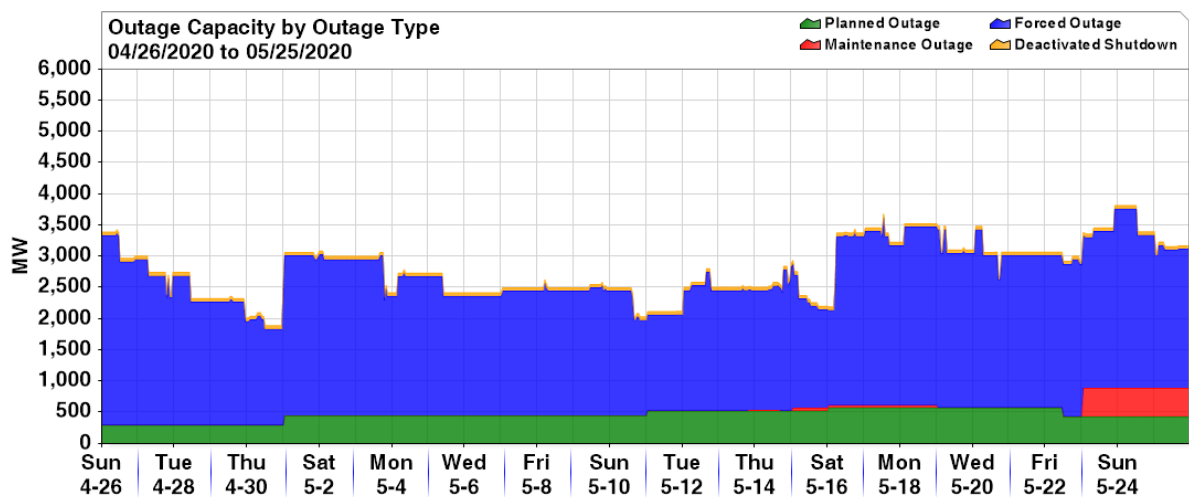


Figure 7. Outage Capacity by Outage Category, May 2020

Table 4. Outage Summary by Outage Category, Apr 2020 and May 2020

Outage Category	May 2020 (in MW)			April 2020 (in MW)		
	Max	Min	Average	Max	Min	Average
Planned	577	300	461	300	300	300
Maintenance	455	0	51	430	0	85
Forced	3,074	1,519	2,233	3,475	1,479	2,253
Deactivated Shutdown	55	55	55	55	55	55

- In terms of type of power plants, coal generators accounted for the highest percentage of outage at 66 percent. This was followed by geothermal generators at 12 percent. Oil-based plants and hydro plants came in next at 10 percent share each in outage while natural gas plants came in last at 2 percent
- Though natural gas plants have the second highest share of registered capacity, they further posted a low level of outage of about an average of 47 MW this month

- San Gabriel NGPP (420 MW) and Sta Rita NGPP unit 4 (264 MW) resumed plant operations on 27 and 28 May, respectively, which brought down the outage of natural gas plants to 0 MW during mid-May
- Hydro plants had a significant increase in outage capacity from almost no outage or an average of 0.4 MW last month to 301 MW this month
- Majority of the average outage of oil-based plants at about 302 MW this month consisted of the prolonged outage of Malaya TPP unit 1 at 300 MW due to problems in the unit generator since 03 May 2019
- Geothermal plants recorded a minimal increase in outage of about 14 percent coming into May

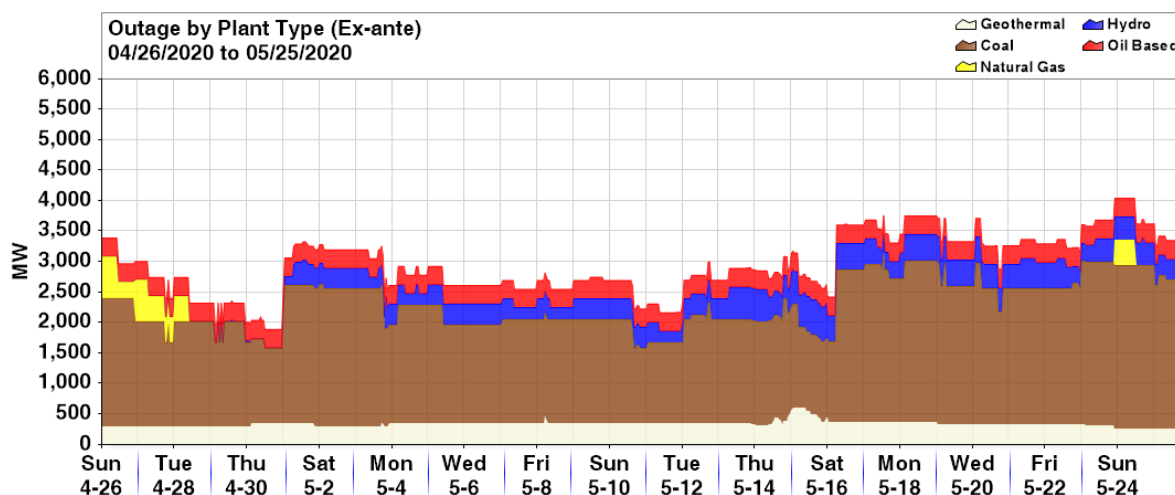


Figure 8. Outage Capacity by Plant Type, May 2020

Table 5. Outage Summary by Plant Type, Apr 2020 and May 2020

Plant Type	May 2020 (in MW)			April 2020 (in MW)		
	Max	Min	Average	Max	Min	Average
Coal	2,798	1,232	1,967	3,112	1,236	1,951
Natural Gas	684	0	47	684	0	76
Geothermal	612	258	344	411	298	301
Hydro	568	0	301	180	0	0.4
Oil-based	360	300	304	360	300	302

1.3. System Demand

- A month-on-month increase of about 12.9 percent was observed in the electricity demand in view of the transition of the country to MECQ and GCQ this month
- Demand was observed to gradually increase towards the end of the month upon the implementation of MECQ and GCQ
- In comparison to last month, the average off-peak demand at 8,918 MW this month saw a 13.0 percent increase while average peak demand at 9,838 MW had a 12.8 percent increase
- Maximum system demand in May reached 11,595 MW for peak hours and 10,855 MW for off-peak hours which both was recorded on 21 May

- Minimum system demand in May reached 7,563 MW for peak hours and 6,494 MW for off-peak hours which occurred on 15 May and 16 May, respectively. The low demand was a consequence of the landfall of Typhoon Ambo in several areas in Luzon and Visayas
- It can be observed that during the MECQ and GCQ period this May, the afternoon peak hours is slowly regaining normality becoming slightly higher than the evening peak hours
- Average temperature for the month was higher as the country is at the end of the hot dry season

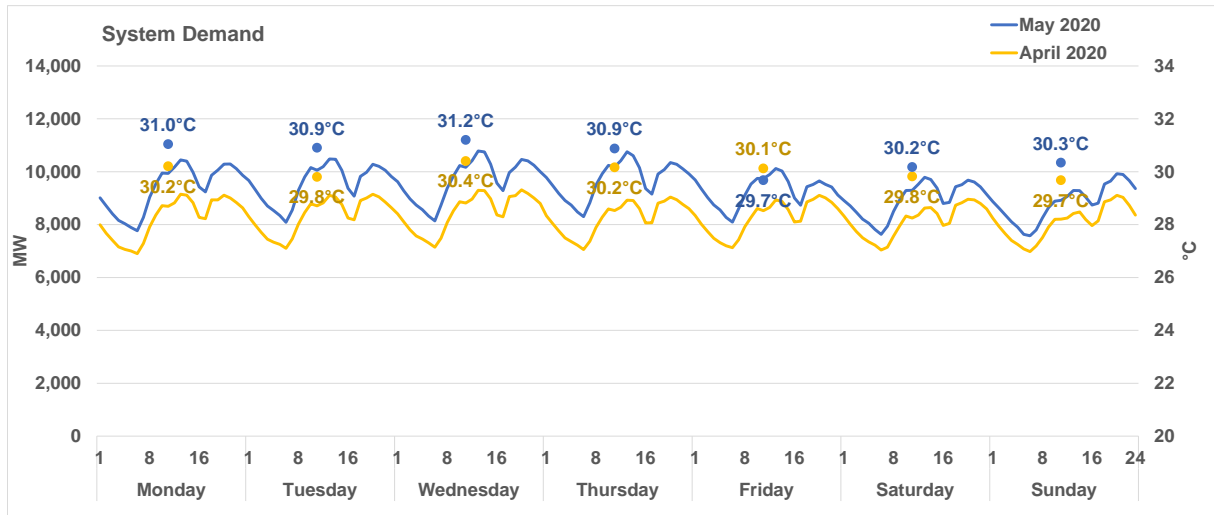


Figure 9. Average Hourly System Demand, Apr 2020 and May 2020

- Comparing to previous year, the average system demand had an opposite trend with a remarkable decline by 15.5 percent from 11,027 MW in May 2019 to 9,318 MW in May 2020
- Similarly, the year-on-year trend had a reduction in average system demand by 17.6 percent during off-peak hours from an average of 10,285 MW to 8,918 MW and 22.6 percent during peak hours from an average of 11,963 MW to 9,838 MW
- The average temperature in May this year was generally higher than last year

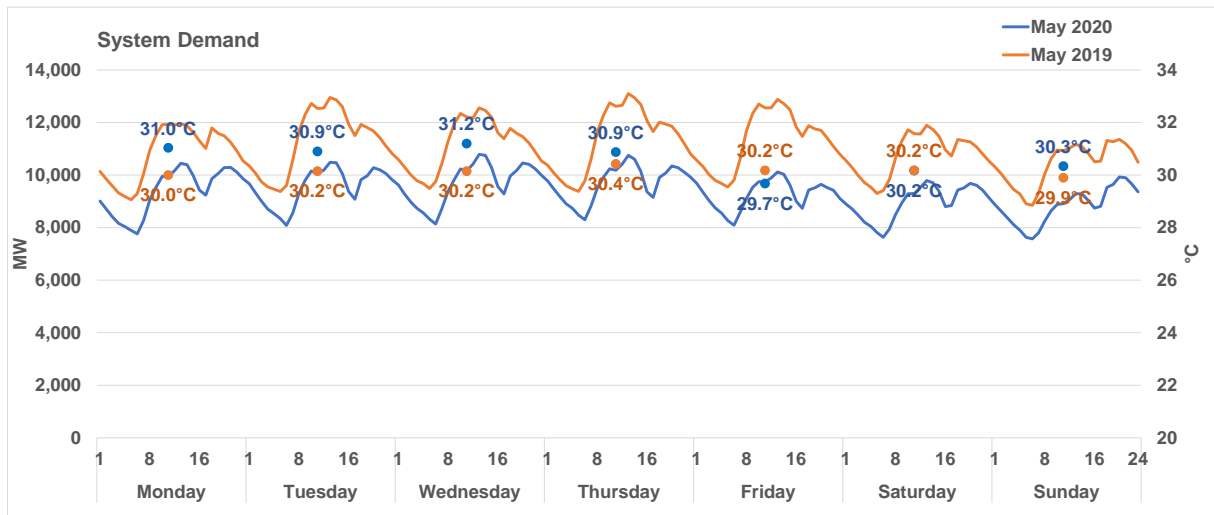


Figure 10. Average Hourly System Demand, May 2019 and May 2020

- Year 2020 was exempt in the consistent pattern of increasing demand every May, which was noticed to have declined because of the community quarantine period
- Even though the demand in May 2020 was comparable to the demand in May 2016, the resulting lower market price was the result of the entry of more power generators competing in the spot market together with the expansion of non-contestable quantities in the market during the 5-year gap

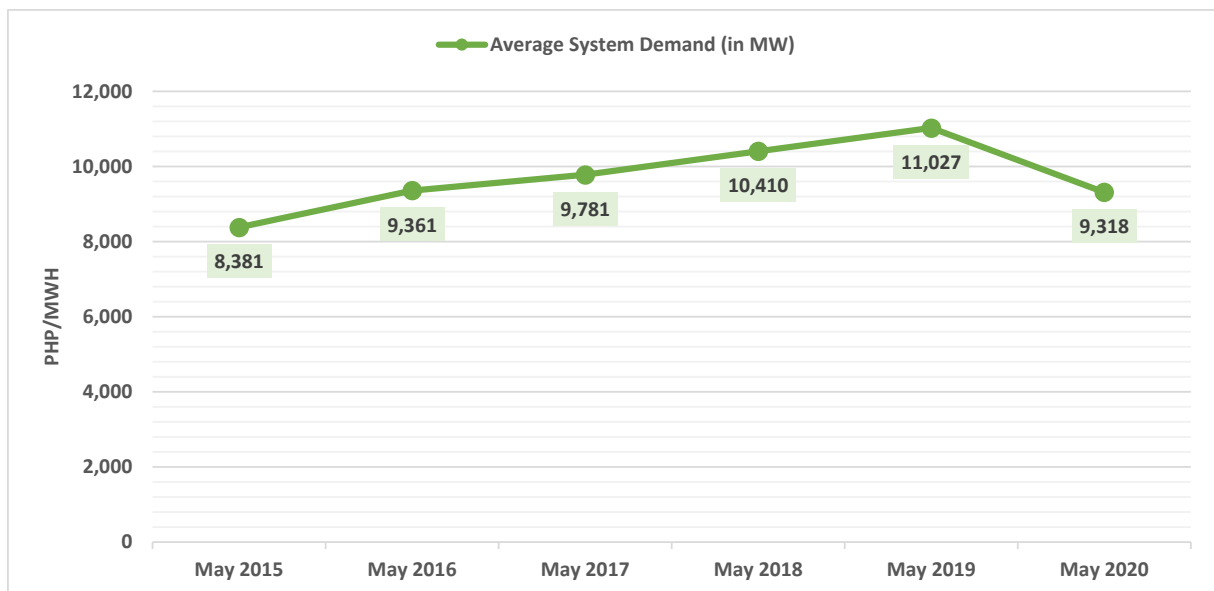


Figure 11. Average System Demand, May 2015-2020

2. Spot Transactions

2.1. Spot Exposure

- Spot quantities⁵ in April stood at 11.1 percent of the total metered quantities, marginally higher than last month's 11.0 percent spot exposure.
- Most of the generator quantities were still transacted outside the spot market at around 87.1 percent of their total generation

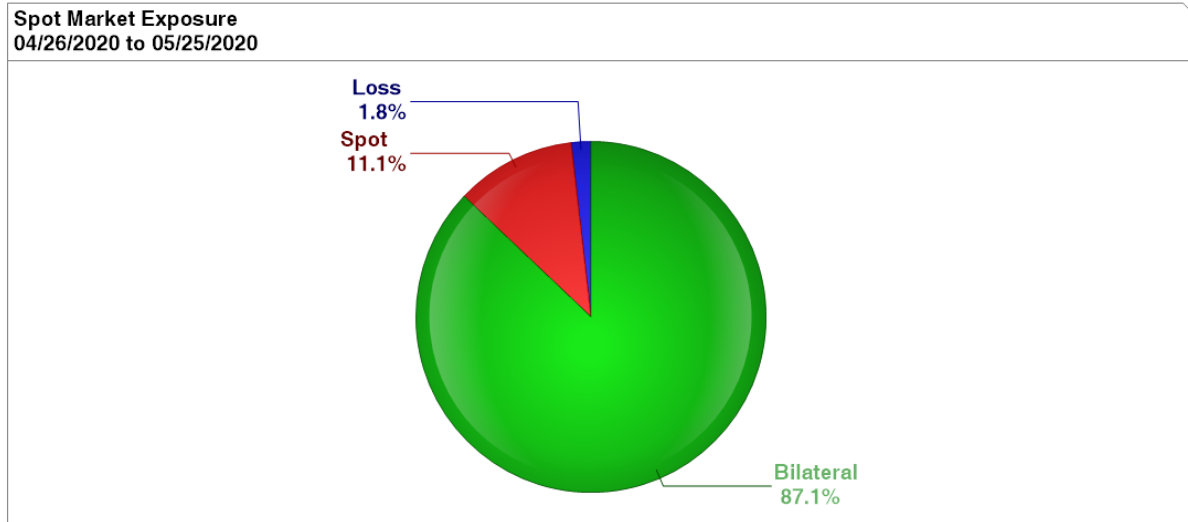


Figure 12. Spot Market Exposure, April 2020

- Hourly spot exposure this month were seen to be increasing during peak hours as compared to last month, resulting with more generator quantities being sold in the market at higher prices
- Spot exposure in off-peak hours averaged at 14 percent while it was 12 percent at peak hours.

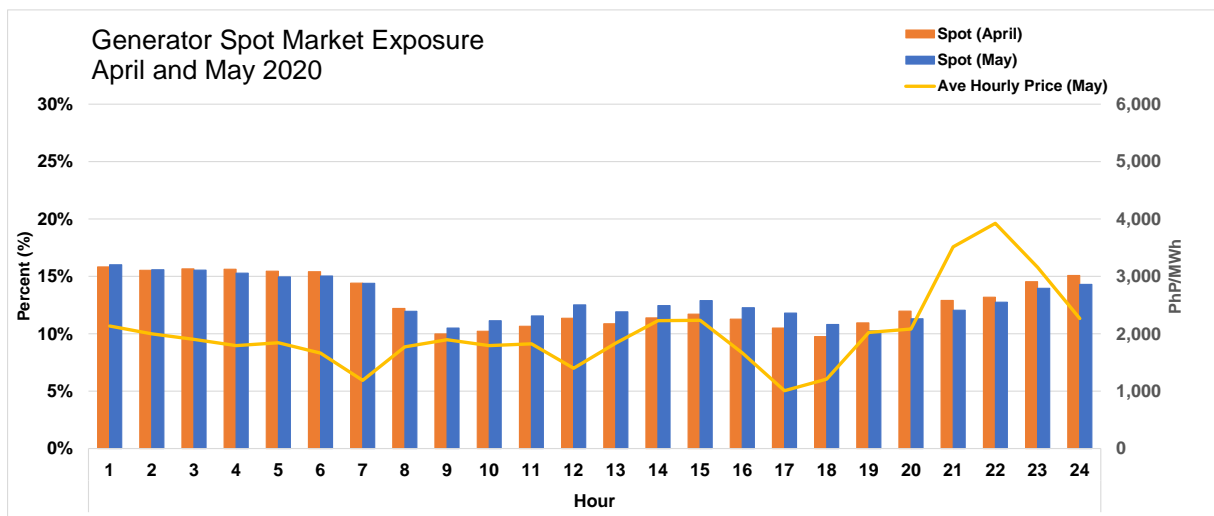


Figure 13. Hourly Spot Market Exposure, May 2020

⁵ Spot quantity refers to the energy transacted in the market. It is the difference between the metered quantity and the bilateral contract quantity. For generator trading participants, positive spot values indicate energy sold while negative values show energy bought in the market

- Based on the spot duration curve⁶ of May billing month, spot quantities fell below 35 MWh at about 90 percent of the time with maximum and minimum spot quantities at 453 MWh and -371 MWh, respectively.

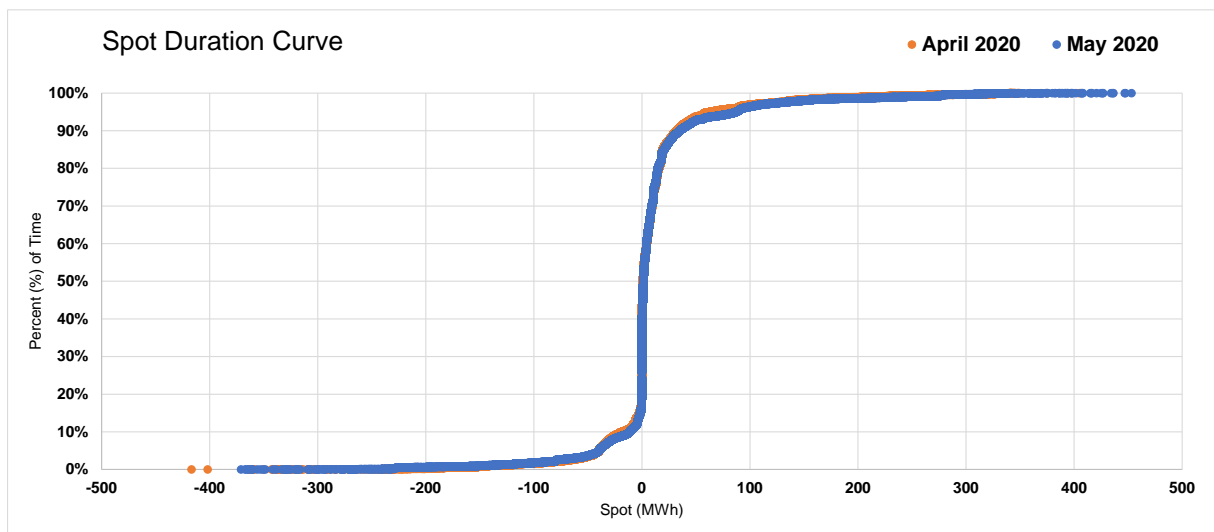


Figure 14. Spot Duration Curve, May 2020

- Generator spot quantities for April and May billing months were much more concentrated on the -200 MWh to 200 MWh range
- Majority or about 76 percent of the generator transactions in the market in April were positive which indicated energy sold in the market.
- Higher generator spot exposure corresponded to an increase in generator trading intervals from 73.3 percent (72,523 generator trading intervals) to 74.2 percent (71,264 generator trading intervals) in the 0 MWh to 200 MWh range this month which translated to generators selling in the spot market with resulting higher prices than last month
- Last month's April billing period was observed to have a similar trend wherein most of the spot quantities are sold in the market instead of being bought

⁶ The spot duration curve utilizes data on a per generator trading interval, meaning, all the data consisted of spot quantities of every generator per interval for the period considered

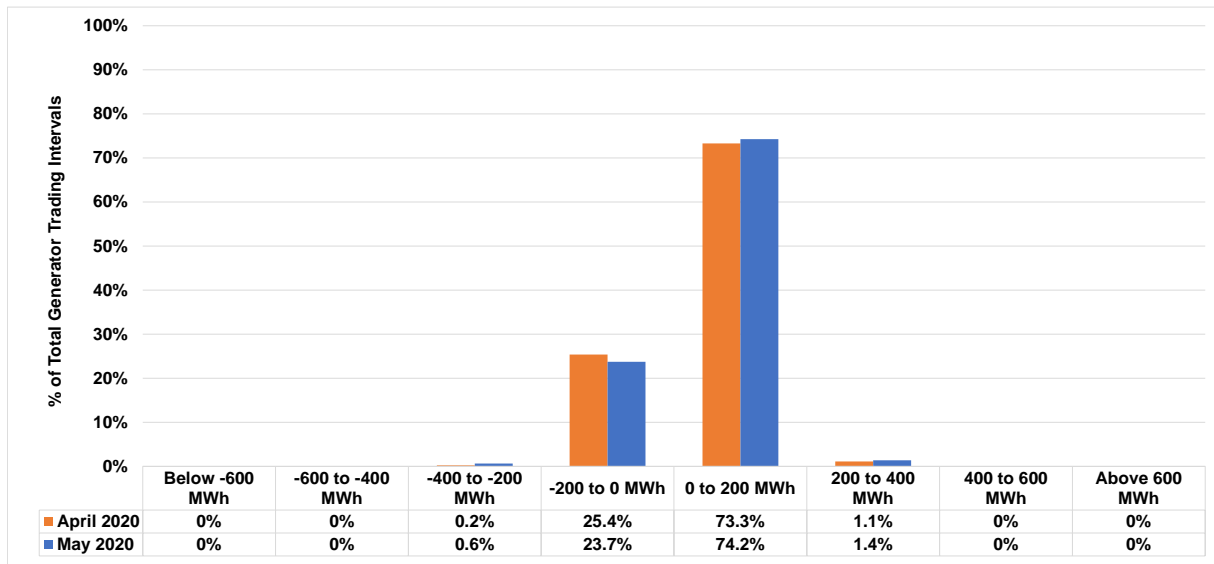
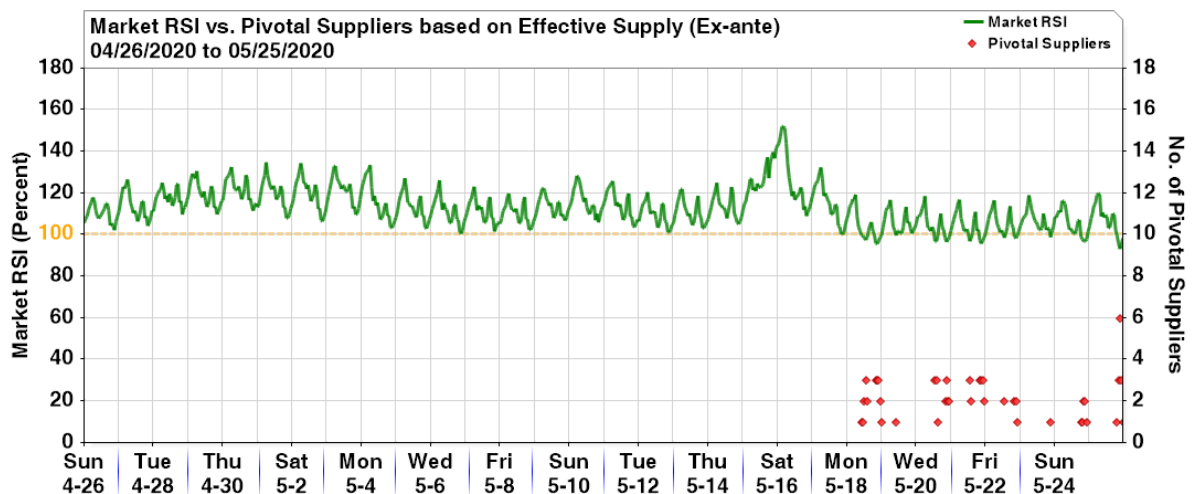


Figure 15. Spot Frequency Distribution Table, May 2020

2.2. Pivotal⁷ Plants

- 39 intervals had a Residual Supply Index⁸ (RSI) below the 100 percent mark from 1 interval in April, indicating the more frequent presence of pivotal suppliers
- These instances occurred after the implementation of the MECQ and GCQ as the market experienced tighter supply margin with the increasing demand and outage capacity
- Additionally, during the community quarantine period, the market resulted to an RSI at an average of 113 percent indicating that supply was still generally abundant to satisfy the demand



⁷ The Pivotal Supply Index (PSI) measures how critical a generator is in meeting the total demand at a time. It is a binary variable (1 for pivotal and 0 for not pivotal) which measures the frequency that a generating is pivotal for a period.

⁸ The Residual Supply Index (RSI) measures the ratio of the available generation without a generator to the total generation required (including operational reserve) to supply the demand. RSI also determines whether there are pivotal suppliers in an interval. An RSI below 100 indicates the presence of pivotal plants.

Figure 16. Market RSI vs Pivotal Suppliers, May 2020

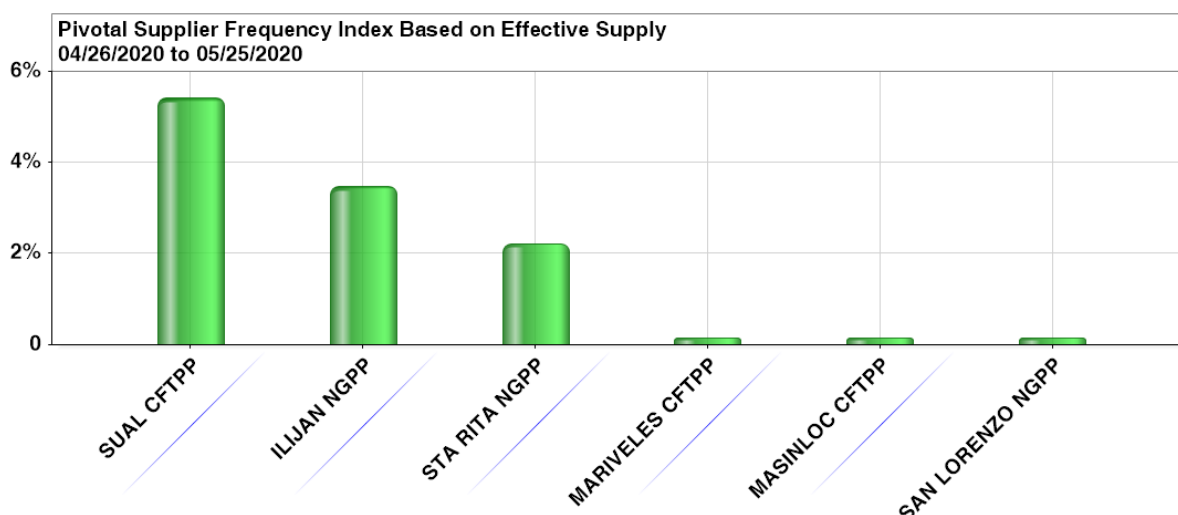


Figure 17. Top Pivotal Plants, May 2020

2.3. Total Trading Amount⁹ (TTA) Share

- Semirara Mining and Power Corporation (SMPC), Power Sector Assets and Liabilities Management Corporation (PSALM), and Millennium Energy, Inc. (MEI) still held the highest TTA share of top sellers in the market with approximately 23.7 percent, 15.6 percent, and 14.8 percent, respectively, or a cumulative 54.0 percent of the entire TTA of generators selling in the market during the billing month
- Likewise, SMPC and PSALM had the highest spot exposure share, with SMPC having the highest at around 28.6 percent, followed by PSALM at 18.4 percent
- Despite reaching only 10.2 percent of share in terms of spot exposure, MEI held the 3rd spot in terms of TTA gaining 15% share
- This month's list was joined by Gregorio Araneta, Inc. (GAI) and SPC Power Corporation (SPC), bumping off Alternergy Wind One Corporation (AWOC) and Universal Robina Corporation (URC) from last month

⁹ The Total Trading Amount (TTA) refers to the amount of revenue from spot market transactions excluding quantities that are declared by the generators as covered by bilateral power supply contracts, which are settled outside the WESM

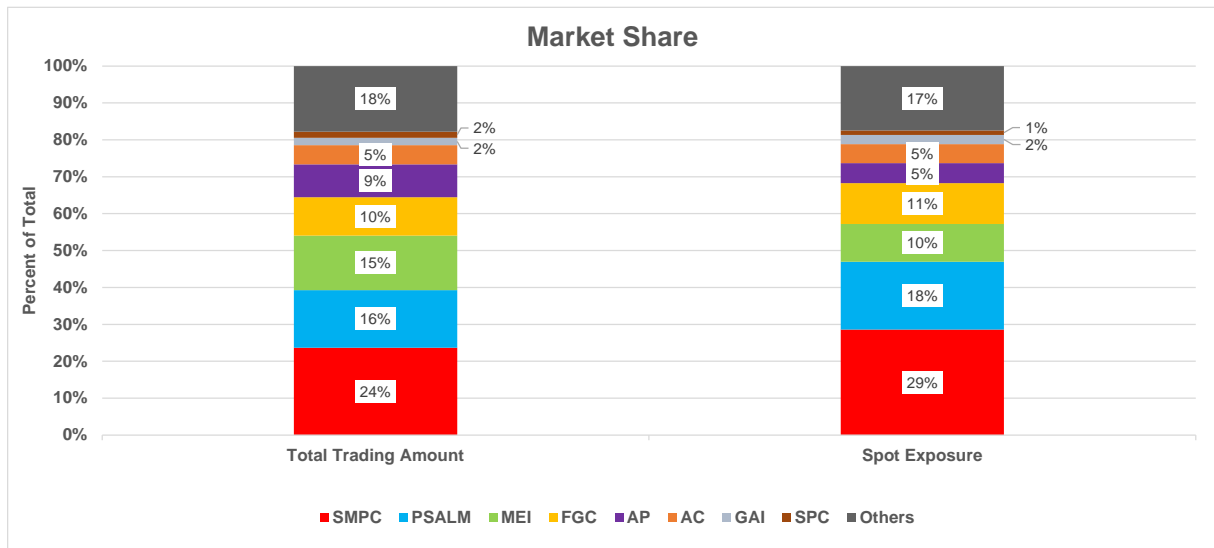


Figure 18. Total Trading Amount and Spot Exposure Share, May 2020

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
VISAYAS	GEO	PGPP2 Unit 4	20	06/27/2014 6:07			Forced Outage	Steam being utilized by Nasulo plant	Aug 1983
LUZON	GEO	Makban 5	55	02/08/2019 16:08			Forced Outage	Low Steam Supply. Divert Steam Supply to unit 3	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 8-05CB08M	Aug 1975
LUZON	GEO	Tiwi 1	59	10/31/2019 23:54			Forced Outage	Low steam supply. Divert steam supply to unit 2	Jan 1979
VISAYAS	COAL	TPC Sangi 1	60	12/17/2019 6:05			Forced Outage	Generator differential trip	Dec 2013
VISAYAS	GEO	Mahanagdong A1	5	02/04/2020 0:11			Forced Outage	Annual PMS of 230kV bus bar.	Jul 1997
VISAYAS	GEO	Upper Mahiao 2	32	02/14/2020 16:04			Forced Outage	cut-in to the system	Jul 1997
LUZON	COAL	SLPGC 2	150	02/19/2020 23:57			Planned Outage	Maintenance outage.	Jan 2015
LUZON	COAL	SMC 3	150	03/10/2020 23:35			Planned Outage	Maintenance outage.	Nov 2017
LUZON	GEO	Makban 7	20	03/13/2020 22:04	05/14/2020 16:13	61.76	Forced Outage	Affected by the tripping of Bay-Makban 230kV L1 and L2	Apr 1979
LUZON	GEO	Makban 8	20	03/13/2020 22:04	05/14/2020 15:06	61.71	Forced Outage	Affected by the tripping of Bay-Makban 230kV L1 and L2	Apr 1979
LUZON	COAL	SMC 4	150	03/19/2020 23:07	05/17/2020 16:39	58.73	Forced Outage	Repair of ESP Transformer	Sep 2018
LUZON	COAL	SLPGC 1	150	03/23/2020 17:44	04/30/2020 11:09	37.73	Forced Outage	Tripped due to boiler tube leak	Jan 2015
VISAYAS	GEO	Upper Mahiao 3	32	03/24/2020 0:11			Forced Outage	Reserved shutdown	Jul 1997
LUZON	COAL	Masinloc 3	335	03/24/2020 0:34			Forced Outage	To facilitate repair on HP heater and Induced draft fan. On commissioning test	Mar 2019
LUZON	COAL	ANDA 1	72	03/25/2020 1:15	05/25/2020 6:31	61.22	Forced Outage	Emergency shutdown due to furnace trouble.	Apr 2015
LUZON	COAL	Masinloc 2	344	03/29/2020 9:27	04/27/2020 18:24	29.37	Forced Outage	Tripped at 70MW load. Turbine protection actuated	Jun 1998
LUZON	COAL	Pagbilao 1	382	04/20/2020 0:55	04/26/2020 21:33	6.86	Forced Outage	To facilitate ESP repair	Mar 1996
LUZON	COAL	Masinloc 1	315	04/21/2020 11:45	05/25/2020 0:13	33.52	Forced Outage	Boiler Tube Leak	Jun 1998
LUZON	NATG	San Gabriel	420	04/24/2020 21:45	04/26/2020 11:05	1.56	Forced Outage	Gas supply restriction	Mar 2016
LUZON	NATG	Sta. Rita 4	264	04/24/2020 22:37	04/27/2020 6:03	2.31	Forced Outage	Cleaning of Fuel gas control valve.	Oct 2001
VISAYAS	GEO	Leyte 2	39.3	04/26/2020 9:35	04/26/2020 10:22	0.03	Forced Outage	Hot well pump tripped	Jun 1983
LUZON	NATG	San Gabriel	420	04/26/2020 21:45	04/28/2020 10:06	1.51	Forced Outage	Gas supply restriction	Mar 2016
LUZON	COAL	Calaca 2	300	04/27/2020 19:07	04/27/2020 20:56	0.08	Forced Outage	Switchgear trouble	Sep 1984
LUZON	COAL	Masinloc 2	344	04/27/2020 22:54	04/29/2020 22:10	1.97	Forced Outage	Turbine Oil leak	Jun 1998
LUZON	HYD	Binga 3	35	04/29/2020 12:01	04/29/2020 14:45	0.11	Forced Outage	Tripped while on Free Governor mode as Regulating Reserve	Jan 1960
LUZON	HYD	Ambuklao 1	35	04/29/2020 22:47	04/30/2020 1:31	0.11	Forced Outage	Tripped due to broken shear pin	Dec 1956
LUZON	GEO	Bacman 1	60	04/30/2020 1:57	05/01/2020 20:21	1.77	Forced Outage	Emergency shutdown due to inlet valve trouble	Sep 1993
LUZON	OIL	Limay 7	60	04/30/2020 6:55	04/30/2020 9:08	0.09	Forced Outage	Failure to start due to acceleration by start.	Dec 1994
LUZON	COAL	Sual 2	647	04/30/2020 23:36	05/03/2020 18:20	2.78	Forced Outage	Emergency shutdown due to HP heater tube leak.	Oct 1999
LUZON	COAL	Pagbilao 1	382	05/01/2020 0:01	05/10/2020 15:02	9.63	Forced Outage	Electrostatic precipitator problem.	Mar 1996
LUZON	HYD	San Roque 1	145	05/01/2020 0:01	05/22/2020 12:00	21.50	Planned Outage	Maintenance Outage until 24 May 2020	May 2003
LUZON	HYD	Ambuklao 3	35	05/01/2020 22:09	05/01/2020 23:18	0.05	Forced Outage	Tripped due to broken shear pin.	Dec 1956
VISAYAS	COAL	PEDC 2	83.7	05/01/2020 23:19	05/02/2020 2:55	0.15	Forced Outage	Emergency shutdown due to steam leak	Apr 2011
LUZON	GEO	Bacman 1	60	05/03/2020 15:48	05/03/2020 18:36	0.12	Forced Outage	High vibration at Turbine bearing 2	Sep 1993
LUZON	HYD	Kalayaan 3	180	05/03/2020 19:05	05/03/2020 20:17	0.05	Forced Outage	Tripped as pump due to loss of station service (tripping of Sta. Service Transformer 3)	May 2004
LUZON	GEO	Bacman 1	60	05/03/2020 20:29	05/23/2020 21:50	20.06	Forced Outage	Circulating Water Pump (CWP) problem	Sep 1993
LUZON	COAL	GN Power 1	316	05/04/2020 3:18	05/05/2020 9:46	1.27	Forced Outage	Reheat Stop Valve problem	May 2013
LUZON	GEO	Tiwi 6	57	05/04/2020 7:08	05/04/2020 8:01	0.04	Forced Outage	Unit transformer tripped by differential protection	Jan 1979
VISAYAS	COAL	CEDC 1	82	05/07/2020 0:38	05/10/2020 14:56	3.60	Forced Outage	TRIPPED. BOILER FURNACE PRESSURE HIGH	Apr 2010
LUZON	GEO	Makban 3	63	05/08/2020 4:23	05/08/2020 5:59	0.07	Forced Outage	Manually tripped due to low steam pressure caused by the problem on steam supply.	Apr 1979
LUZON	GEO	Makban 4	63	05/08/2020 4:25	05/08/2020 6:27	0.08	Forced Outage	Manually tripped due to low steam pressure caused by the problem on steam supply.	Apr 1979
LUZON	OIL	TMO Unit 3	53.4	05/09/2020 10:07	05/09/2020 19:04	0.37	Forced Outage	Declared unavailable due to the construction of containment or barrier for oil leak.	Nov 2013
LUZON	HYD	Ambuklao 1	35	05/09/2020 18:46	05/09/2020 19:33	0.03	Forced Outage	Broken shear pin.	Dec 1956
LUZON	HYD	Ambuklao 3	35	05/09/2020 20:01	05/09/2020 21:06	0.05	Forced Outage	Tripped due to lube-oil system problem.	Dec 1956
LUZON	COAL	APEC 1	52	05/10/2020 17:45	05/10/2020 19:30	0.07	Forced Outage	Emergency shutdown due to strong local storm	Jul 2006
VISAYAS	COAL	CEDC 2	82	05/11/2020 0:34			Planned Outage	APMS	Jun 2010
VISAYAS	OIL	PB102 Unit 1	6	05/11/2020 19:23	05/13/2020 17:20	1.91	Forced Outage	Internal trouble	Apr 1981
LUZON	COAL	Pagbilao 1	382	05/12/2020 0:16	05/15/2020 4:03	3.16	Forced Outage	Emergency shutdown due to low temperature reheater problem	Mar 1996
VISAYAS	COAL	CEDC 1	82	05/12/2020 5:07	05/12/2020 15:26	0.43	Forced Outage	UNIT TRIPPED. UNDER ASSESSMENT	Apr 2010
LUZON	COAL	Calaca 2	300	05/12/2020 15:58	05/12/2020 18:44	0.12	Forced Outage	Tripped from 297MW load with Turbine Tripped indication. Lowest frequency is 59.256Hz	Sep 1984
LUZON	HYD	Ambuklao 1	35	05/13/2020 15:23	05/13/2020 16:02	0.03	Forced Outage	Broken shear pin	Dec 1956
VISAYAS	OIL	PDP3 G	13	05/13/2020 17:57	05/13/2020 21:05	0.13	Forced Outage	Auto-tripped due to Lube Oil Pressure Too Low	Mar 2005
VISAYAS	OIL	PB102 Unit 3	6	05/13/2020 19:16	05/14/2020 16:27	0.88	Maintenance Outage	Offline due to Gas leak at Cyl. 2R	Apr 1981
LUZON	GEO	Bacman 3	20	05/14/2020 8:24	05/23/2020 2:05	8.74	Forced Outage	Plant safety measure due to passage of Typhoon Ambo. On houseload operation	Sep 1993
LUZON	GEO	Bacman 2	60	05/14/2020 11:20	05/14/2020 17:45	0.27	Forced Outage	Plant safety measure due to Typhoon Ambo. Unit tripped while on houseload operation	Sep 1993
VISAYAS	OIL	Bohol 3	4.2	05/14/2020 14:56			Forced Outage	Auto-tripped due to excitation failure	Sep 1978
LUZON	GEO	Bacman 2	60	05/14/2020 18:21	05/15/2020 17:19	0.96	Forced Outage	Precautionary measure for the passage of Typhoon Ambo. On house load operation	Sep 1993
LUZON	COAL	Calaca 2	300	05/14/2020 18:43	05/14/2020 21:06	0.10	Forced Outage	Tripped from 298MW. Lowest frequency is 59.3617Hz. Turbine tripped actuated	Sep 1984
LUZON	GEO	Tiwi 6	57	05/14/2020 21:06	05/15/2020 20:15	0.96	Forced Outage	Tripped from 30MW load. Root cause is still for validation	Jan 1979
LUZON	GEO	Tiwi 5	57	05/14/2020 22:07	05/15/2020 12:49	0.61	Forced Outage	Precautionary measure for the passage of Typhoon Ambo. On house load operation	Jan 1979
LUZON	HYD	Kalayaan 1	180	05/14/2020 23:04	05/15/2020 1:17	0.09	Forced Outage	Failed to start as pump	Aug 1982
LUZON	GEO	Tiwi 2	59	05/14/2020 23:59	05/15/2020 10:34	0.44	Forced Outage	Precautionary measure for the passage of Typhoon Ambo. On house load operation	Jan 1979
VISAYAS	GEO	Leyte 1	41	05/15/2020 0:27	05/19/2020 0:58	4.02	Maintenance Outage	Planned outage. TGPP unit 1 Scrubber inspection. May 15 - May 19 (2400H)	Jun 1983
LUZON	GEO	Bacman 2	60	05/15/2020 20:55	05/16/2020 0:33	0.15	Forced Outage	Generator protection actuation (87G).	Sep 1993
LUZON	HYD	Angat M 2	50	05/16/2020 0:01			Planned Outage	Maintenance Outage until 30 May 2020	Oct 1967
LUZON	COAL	Pagbilao 3	420	05/16/2020 4:21	05/20/2020 6:02	4.07	Forced Outage	Tripped at 131MW load. System Frequency at 59.53hz.	Jul 2017
LUZON	COAL	Pagbilao 1	382	05/16/2020 5:43	05/19/2020 2:18	2.86	Forced Outage	Tripped at 120MW load. System frequency at 59.32hz.	Mar 1996
LUZON	COAL	Pagbilao 2	382	05/16/2020 5:43			Forced Outage	Tripped at 120MW load. System frequency at 59.32hz.	Mar 1996
VISAYAS	OIL	PDP3 E	12	05/16/2020 10:02	05/16/2020 13:48	0.16	Forced Outage	Internal trouble	Mar 2005
LUZON	GEO	Tiwi 2	59	05/16/2020 17:31	05/16/2020 18:50	0.05	Forced Outage	Initial reported probable cause of outage is lightning strike.	Jan 1979
VISAYAS	COAL	CEDC 3	82	05/17/2020 0:50	05/17/2020 11:26	0.44	Forced Outage	Cool feeder line bellow repair. ETC. 0800H today	Jan 2011
LUZON	COAL	Calaca 2	300	05/17/2020 12:19	05/17/2020 13:53	0.07	Forced Outage	Reason still under investigation	Sep 1984
LUZON	COAL	Calaca 2	300	05/18/2020 2:20			Forced Outage	Tripped at 150MW load. System Frequency at 59.46hz.	Sep 1984
LUZON	COAL	Pagbilao 1	382	05/19/2020 4:17	05/19/2020 6:02	0.07	Forced Outage	Boiler Drum Level Low	Mar 1996
VISAYAS	GEO	Leyte 1	41	05/19/2020 17:20	05/19/2020 18:12	0.04	Forced Outage	Under investigation	Jun 1983
LUZON	COAL	Pagbilao 1	382	05/20/2020 1:39	05/20/2020 16:45	0.63	Forced Outage	Loss of Generator Excitation	Mar 1996
VISAYAS	OIL	Bohol 4	4	05/20/2020 14:16			Forced Outage	Generator fault.	Sep 1978
LUZON	COAL	Pagbilao 1	382	05/20/2020 18:44			Forced Outage	Due to loss of field excitation (AVR problem)	Mar 1996
VISAYAS	COAL	CEDC 3	82	05/22/2020 17:05	05/22/2020 22:30	0.23	Forced Outage	GENERATOR TRANSFORMER OLTC PROTECTION TRIP	Jan 2011
LUZON	COAL	SBPL	455	05/23/2020 0:29			Maintenance Outage	Maintenance Outage until 03 June 2020	Apr 2019
LUZON	HYD	Magat 2	97	05/23/2020 7:31			Forced Outage	Oil leak on servo motor.	Aug 1983
LUZON	NATG	San Gabriel	420	05/23/2020 21:40	05/24/2020 12:11	0.60	Forced Outage	Gas Restriction from Malampaya Onshore Gas Plant.	Mar 2016
LUZON	COAL	SMC 1	150	05/25/2020 2:19			Forced Outage	Emergency shutdown to rectify hotspot at Lamao Substation and repair of coal feeders.	Nov 2016
LUZON	GEO	MGPP 2	12	05/25/2020 15:46			Forced Outage	Emergency shutdown to conduct trouble-shooting of main control valve.	Dec 2017