Monthly Market Assessment Report

26 July 2020 to 25 August 2020

SEPTEMBER 2020

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

Table of Contents

List of Tables

List of Figures

Monthly Market Assessment Report for August 2020 Billing Month

I. Assessment of the Market

- 96 percent of the total market price outcomes in August 2020 was a result of normal pricing condition, almost similar with high monthly percent share of normal intervals last month.
- The remainder, however, required other forms of pricing methodologies
    - Price Substitution Methodology was applied to 9 intervals or 1.2 percent of the total outcomes (see Table 1 below). The 9 intervals or 100 percent with congestion were due to the frequent congestion events on Samboan-Amlan line 1 in Visayas Previously, the Samboan-Amlan line congestion constituted around 243 intervals or 55% of the total 441 intervals with congestion from Jan to Feb prior to the community quarantine in Mar.
    - Prices with pricing error occurred around 2.4 and 3.1 percent of the time for Luzon and Visayas, respectively, of which majority was the 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), August 2020**

Pricing Condition	No. of Intervals			
	Luzon	% of Time	Visayas	% of Time
Normal	712	95.7%	717	96.4%
Congestion	9	1.2%	9	1.2%
Pricing Error Notice	23	3.1%	18	2.4%
Administered Price	0	0%	0	0%
Secondary Cap	0	0%	0	0%
Total	**744**	**100%**	**744**	**100%**

- For intervals under normal condition, low prices were observed due to supply sufficiency and depressed demand levels because of the continuing quarantine protocols this month.
- While supply was sufficient, it was on a declining trend driven by the recorded increase in total outage level from power plants and capacities not offered while average system demand dropped further than last month. The demand, however, was still on an unusual lower level in comparison with past years' August demand.

Notable Highlight:

1. *Unusual year-on-year decline in demand*
   - *Observed low level of demand due to imposed community quarantine*

2. *Diminishing demand and market price*
   - *Further reduction in power consumption and market price during the MECQ period (4-18 August 2020)*

3. *Over-generation in Visayas region*
   - *Existence of negative prices in the Visayas region on 2 August 2020*

II. Market Outcome

a. Price[1]

i. Price and Supply Margin

- From 04 to 18 August, several high-risk areas (Metro Manila, Bulacan, Cavite, Laguna, and Rizal) reverted to the Modified Enhanced Community Quarantine (MECQ) coming from the General Community Quarantine (GCQ), allowing for stricter economic activities in the country. After which, the GCQ was reinstated for the rest of the period. While quarantine protocols continue to be implemented in August, there were no episodes of price spikes this period.
- Meanwhile, an average supply margin at 2,652 MW for August 2020 was noted to have been the highest recorded supply margin in all of August for the past 5 years (2015-2019).
- Since the implementation of the community quarantine last March 2020, the average monthly supply margin had an unusual high level which resulted in low WESM prices. This observation was contrary to the trend in previous years of the same season.
- In the duration of the 15-day MECQ, prices slightly dipped to an average of PhP1,973/MWh from the whole August GCQ's PhP2,101/MWh.
- Load-weighted average price (LWAP) of August 2020 at PhP2,017/MWh was likewise the lowest recorded monthly price when compared to the August billing months in the last 5 years (2015-2019).

[1] The market prices were represented by the following: (i) ex-ante load weighted average price (LWAP) for trading intervals without pricing error during ex-ante, (ii) ex-post LWAP for trading intervals with pricing error during ex-ante but without pricing error during ex-post, (iii) LWAP based on the market re-run result for trading intervals with pricing error both during ex-ante and ex-post, and (iv) estimated load reference price (ELRP) for trading intervals where the ERC-approved Price Substitution Mechanism (PSM) was applied.

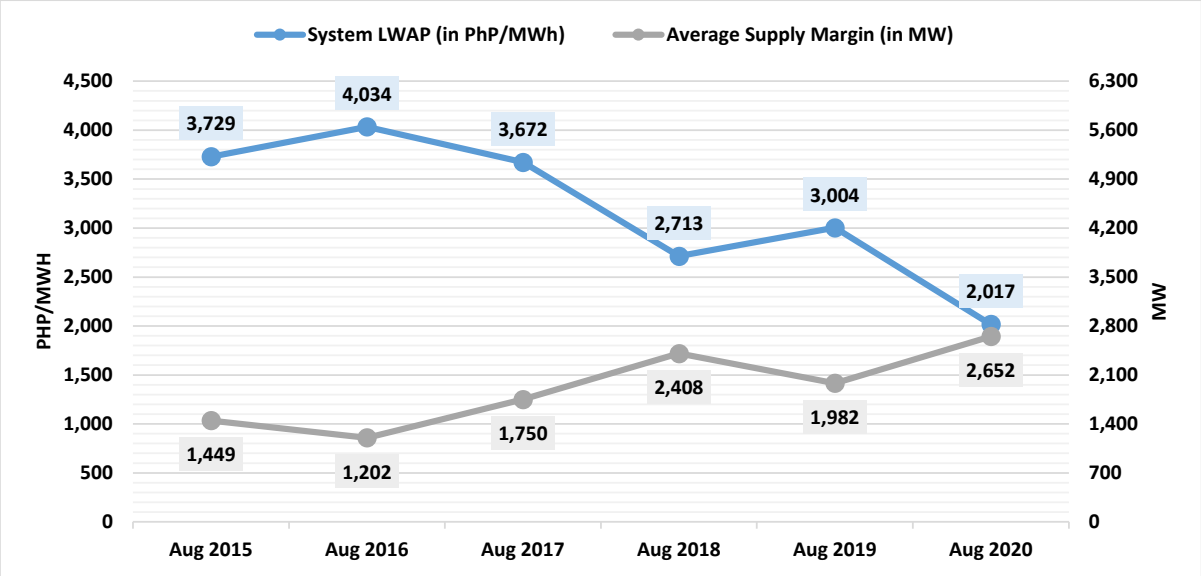


Figure 1. **System LWAP and Supply Margin, August 2015-2020**

- Monthly load weighted average price (LWAP) decreased by 5 percent as compared to July.
  - Monthly average peak prices decreased by 2 percent from PhP2,348/MWh to PhP2,298/MWh.
  - Monthly average off-peak prices decreased by 6 percent from PhP1,882 to PhP1,761/MWh.
- The average supply margin further widened by 11 percent from 2,381 MW in July 2020 to 2,652 MW in August 2020

Table 2. **System LWAP and Supply Margin, July and August 2015-2020**

Year	Month	Average Supply Margin	% Change in Average Supply Margin	System LWAP	% Change in System LWAP
2015	July	1,184	22%	4,470	-17%
	August	1,449		3,729	
2016	July	1,360	-12%	2,837	42%
	August	1,202		4,034	
2017	July	1,606	9%	3,169	16%
	August	1,750		3,672	
2018	July	1,964	23%	3,794	-29%
	August	2,408		2,713	
2019	July	1,596	24%	4,657	-35%
	August	1,982		3,004	
2020	**July**	**2,381**	**11%**	**2,124**	**-5%**
	August	**2,652**		**2,017**	

- Hourly resolution of LWAP recorded the highest at PhP6,297/MWh on 25 August 2020 1500H as a combined result of the high plant outage reaching 2,409 MW and high level of demand at 12,118 MW relative to other days of August.
- Also, occurring on the same date and interval was one of the lowest supply margins for August 2020 at 822 MW.
- Majority of the time, the hourly system LWAP was stable throughout the month with bulk of the market prices below the PhP4,000/MWh level.
- During the August billing month, prices in the MECQ period were lower by 8 percent with an average of PhP1,973/MWh as compared to the GCQ period's (26 July to 03 August, 19 to 25 August 2020) average of PhP2,101/MWh.

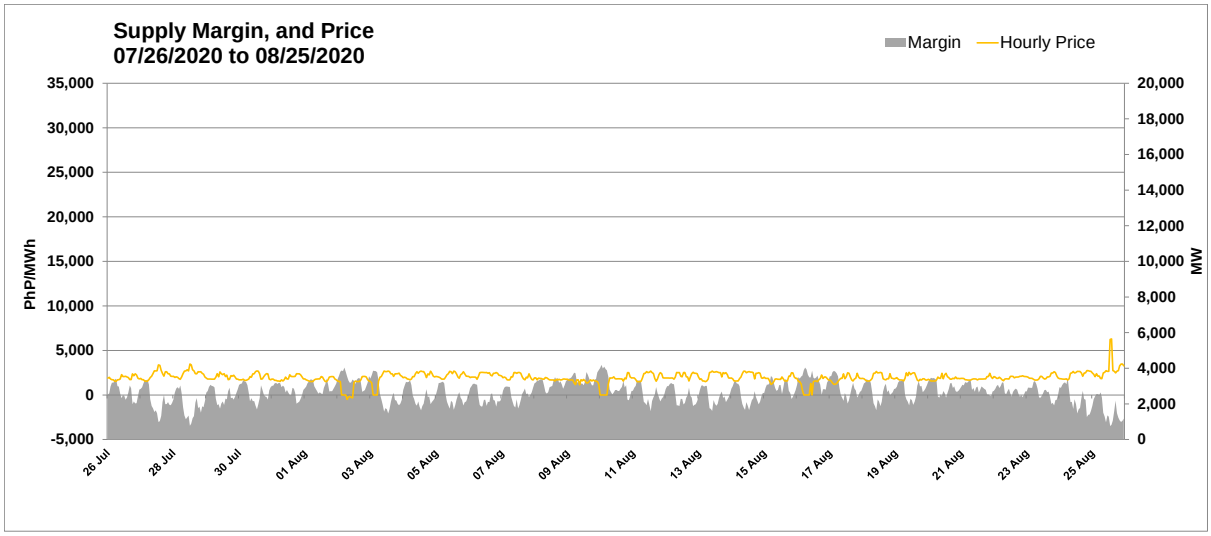


Figure 2. **Hourly Supply Margin and Price, August 2020**

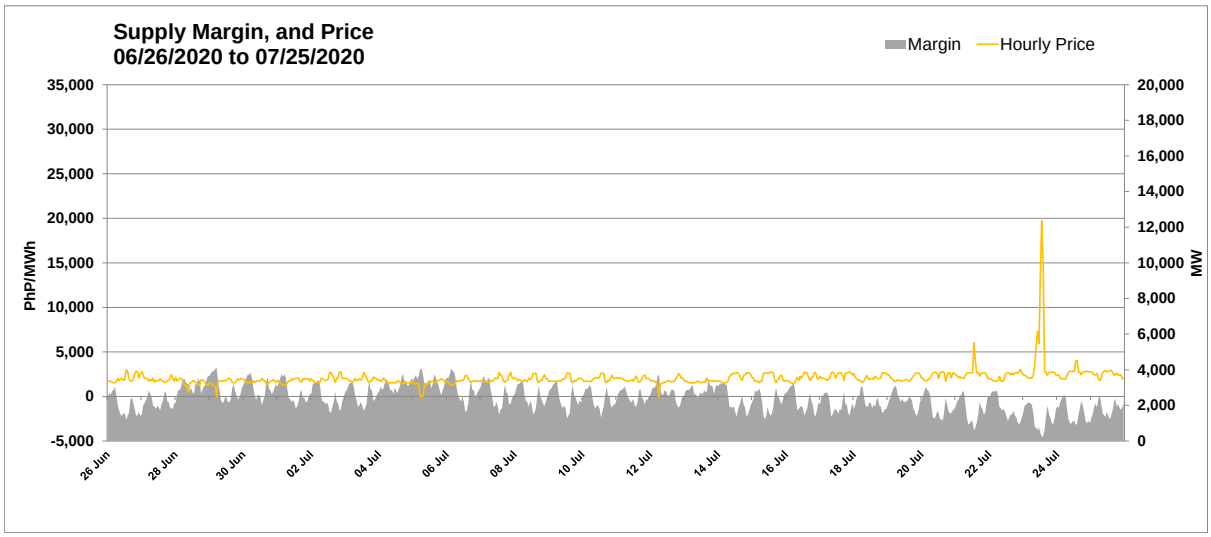


Figure 3. **Hourly Supply Margin and Price, July 2020**

- On 02 August (Sunday), the market resulted to a series of unusual negative system LWAPs, ranging from the lowest of the month at PhP-499/MWh to PhP-163/MWh, affecting 5 intervals (0800H-1200H) due to the over-generation in the Visayas region on 0800H-1300H caused by the maintenance outage of the HVDC link.
- Hourly LWAP in the Visayas region dropped to as low as PhP-10,593/MWh because of generally low demand during Sundays which caused the overgeneration in the region.
- Whenever the HVDC link is bound, be it from reaching its maximum scheduled capacity or resulting from an outage of the line, price separation between the two regions occurs. Otherwise, a singular or system price for the interval will be utilized, which was the case for the rest of the intervals except for those aforementioned.

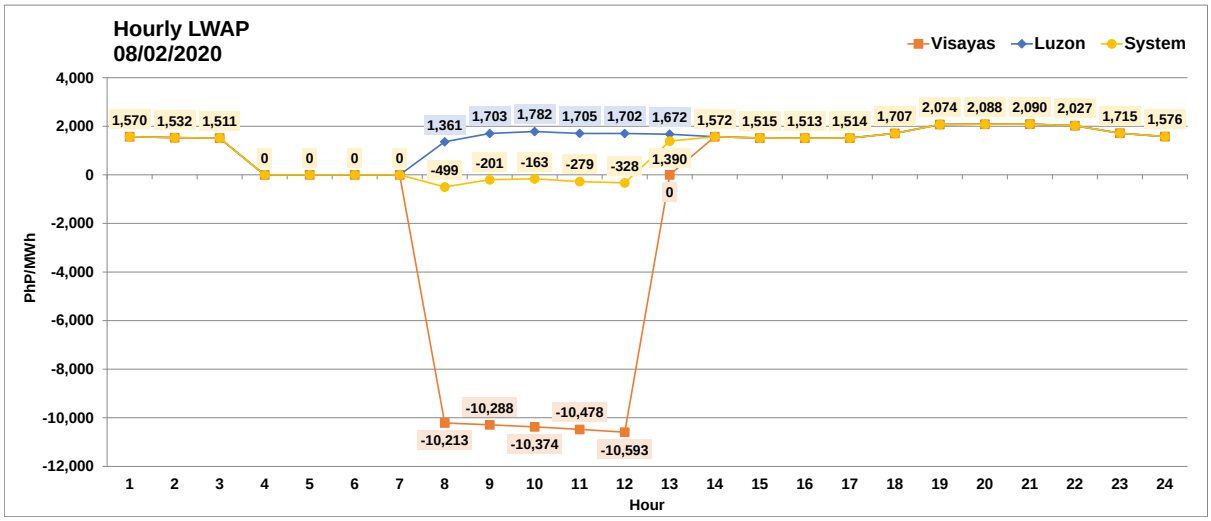


Figure 4. **Hourly Regional and System LWAP, 02 August 2020**

ii. Price Duration Curve[2]

- For peak hours, about 90 percent of the load nodal prices fell below PhP2,639/MWh in August and PhP2,720/MWh in July while distribution of prices during the off-peak hours were seen below PhP2,399/MWh in August and PhP2,444/MWh in July in about the same percentage of time.
- Maximum off-peak and peak load nodal price reached PhP7,278/MWh and PhP6,516/MWh in August, respectively.
- Bulk of the peak nodal prices at around 67 percent were seen ranging from PhP0/MWh to PhP2,000/MWh while for off-peak nodal prices, this was at 68 percent at the range of PhP2,000/MWh to PhP4,000/MWh

[2] Load nodal prices under normal pricing condition are used and are subject to change upon final validation of prices

- Nodal prices reaching as low as PhP-11,471/MWh to PhP-9,671/MWh were evident during off-peak intervals, owing to the over-generation in the Visayas region.

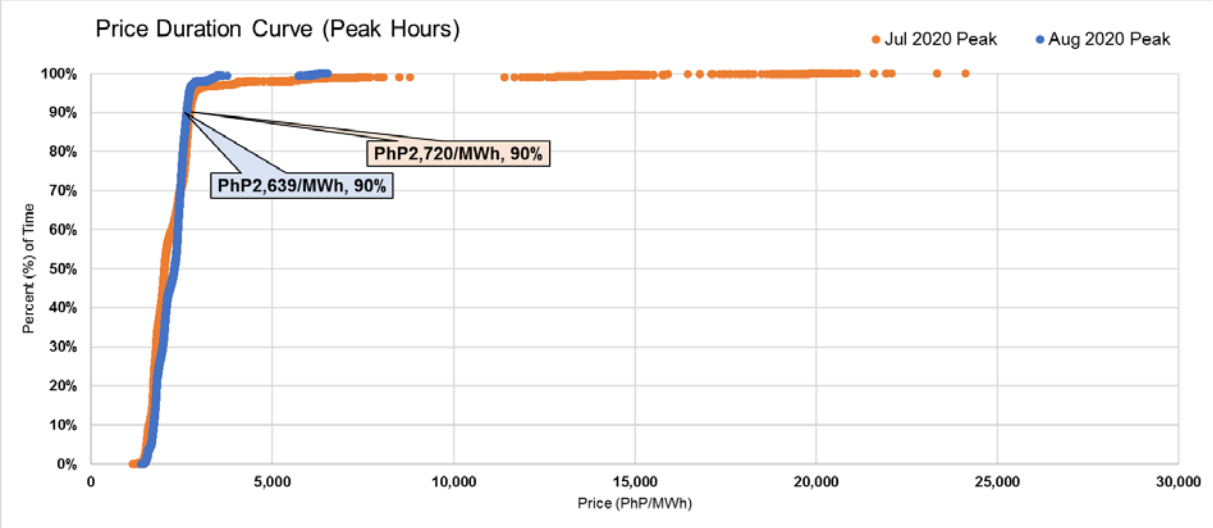


Figure 5. **Load Nodal Price Duration Curve (Peak), July 2020 and August 2020**

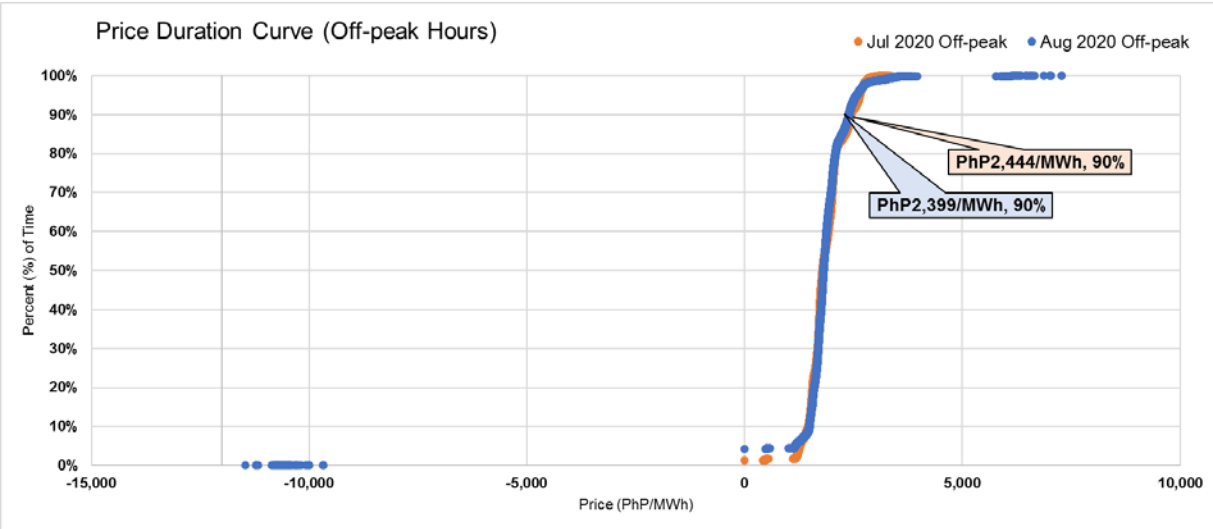


Figure 6. **Load Nodal Price Duration Curve (Off-peak), June 2020 and August 2020**

b. Supply

- A net decrease of 5.2 MW was accounted this month from a total of 20,187.67 MW to 20,182.47 MW was recorded in the WESM registered capacity.

  - Decrease in capacity of Therma DPP units 1, 3, 4, 5, and 6 from 7.4 MW to 6.8 MW each and Therma DPP unit 2 from 7.4 MW to 6.7 MW.
  - Ceased registration of the 1.5-MW Home Depot Solar plant.
- Available capacity[3] constituted an average of 14,781 MW or 73 percent of the total registered capacity.
- Capacity not offered comprised an average of 3,188 MW or 16 percent.
- Outage capacity accounted for an average of 2,217 MW or 11 percent.

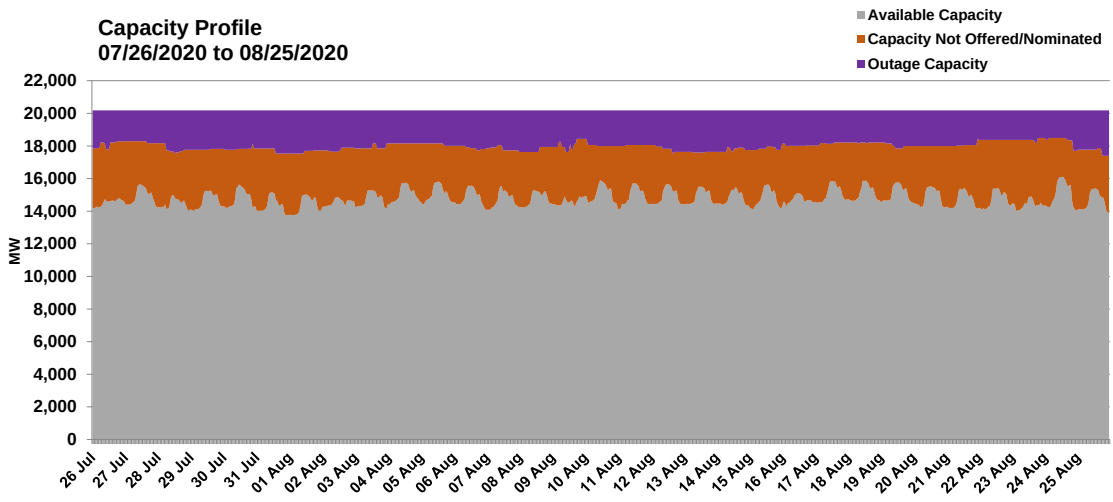


Figure 7. **Capacity Profile, August 2020**

i. Outage Capacity[4]

- Outage capacity increased by 3.6 percent from an average of 2,139 MW last month to an average of 2,217 MW this month.
- Planned outages comprised 660 MW on average or 31 percent of the total outages. Majority or about 66 percent was composed of forced outages averaging at 1,431 MW, and maintenance outages at 18 MW or 1 percent of the total outages. Meanwhile, deactivated shutdown accounted for only about 55 MW on average or 3 percent of the outages.
- Level of total outages for the month closed at 2,781 MW, higher level than its opening at 2,318 MW.
- Coal plants majorly contributed to the level of planned and forced outages while geothermal plants in maintenance outages and deactivated shutdown.
- Natural gas plants recorded 100 percent availability this month with no capacity on outage.

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

[4] Notable plants on outage are detailed in the Annex

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

Plant Type	Planned Outage (31%)	Forced Outage (66%)	Maintenance Outage (1%)	Deactivated Shutdown (3%)
Coal	98%	51%	2%	0%
Natural Gas	0%	0%	0%	0%
Geothermal	1%	15%	83%	100%
Hydro	0%	7%	15%	0%
Oil-based	1%	26%	0%	0%
TOTAL	**100%**	**100%**	**100%**	**100%**

- Planned outages had an increase of about 6 percent owing to the scheduled outages from the following coal plants: Pagbilao CFTPP unit 2 (382 MW) which went online on 21 August, and Masinloc CFTPP unit 1 (315 MW).
- Meanwhile, forced outages had a minimal increase in monthly average level from 1,394 MW to 1,431 MW.
- A high level of forced outage was noted by the end of the August billing month owing to the forced outage of Sual CFTPP unit 1 (647 MW) on 24 August and SBPLC CFTPP (455 MW) on 25 August.
- Maintenance outage was further kept at a low level similar with last month due to the short outages from coal, geothermal, and hydro plants at the latter part of the month.

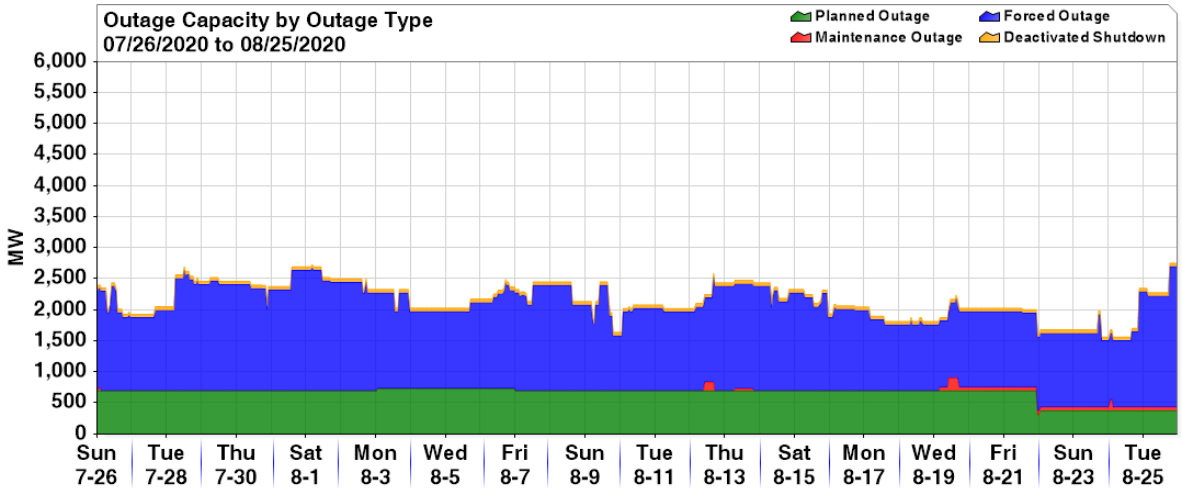


Figure 8. **Outage Capacity by Outage Category, August 2020**

Table 4. **Outage Summary by Outage Category, July 2020 and August 2020**

Outage Category	August 2020 (in MW)			July 2020 (in MW)		
	Max	Min	Average	Max	Min	Average
Planned	737	315	660	1,117	382	621
Maintenance	208	0	18	1,174	0	58
Forced	2,263	890	1,431	2,032	1,146	1,394
Deactivated Shutdown	55	55	55	55	55	55
TOTAL	**2,756**	**1,562**	**2,163**	**3,460**	**1,583**	**2,129**

- In terms of type of power plants, coal generators accounted for more than half of the outages at 65 percent. This was followed by oil-based generators at 18 percent. Geothermal plants came in close with 13 percent share while hydro plants were at 5 percent. Natural gas plants came in last with 0 percent or no recorded outage this month.
- Throughout the whole billing period, hourly outage shares of coal generators did not go below 50 percent.
- Average outage level of hydro plants was halved from last month with all plants going online this month.
- Majority of the outage of oil-based plants at about 394 MW this month consisted of the prolonged forced outage of Malaya TPP unit 1 (300 MW) due to problems in the unit generator since 03 May 2019, and the forced outage of Limay CCGT unit 6 (60 MW) starting 19 July 2020.
- Geothermal plants recorded a minimal decline in outage of about 4 percent coming into August.

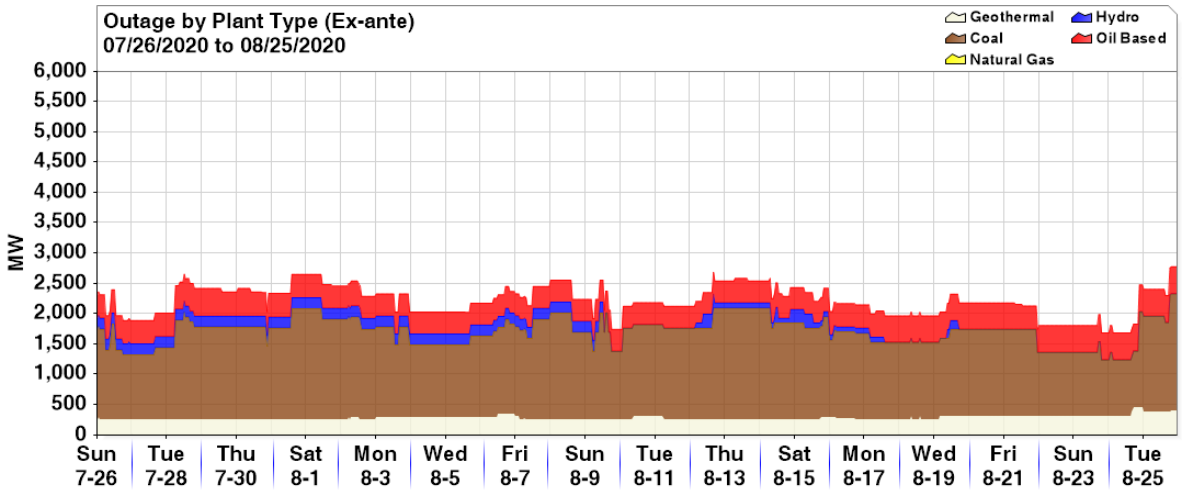


Figure 9. **Outage Capacity by Plant Type, August 2020**

Table 5. **Outage Summary by Plant Type, July 2020 and August 2020**

Plant Type	August 2020 (in MW)			July 2020 (in MW)		
	Max	Min	Average	Max	Min	Average
Coal	1,927	928	1,435	2,267	666	1,015
Natural Gas	0	0	0	833	0	239
Geothermal	461	254	282	358	254	292
Hydro	263	0	106	540	180	225
Oil-based	457	360	394	735	300	368
TOTAL	**2,781**	**1,690**	**2,217**	**3,239**	**1,542**	**2,139**

c. System Demand

- System demand declined to an average of 9,524 MW with cooler recorded temperatures compared to last month. This was a 6.1 percent reduction from last month's average of 10,146 MW as the country was experiencing the rainy season.
- In the duration of the 15-day MECQ, system demand declined to an average of 9,500 MW from the whole August GCQ's 9,937 MW.
- In comparison to last month, the average off-peak demand at 8,862 MW this month saw a 5.8 percent decrease as well as a 5.2 percent decline in the average peak demand recorded at 10,373 MW this month.
- Maximum system demand in August reached 12,255 MW for peak hours on 27 July and 11,004 MW for off-peak hours on 25 August.
- Minimum system demand in August was at 8,508 MW for peak hours and 7,093 MW for off-peak hours which transpired on 01 and 02 August, respectively.
- Average temperatures on all weekdays were lower than last month.

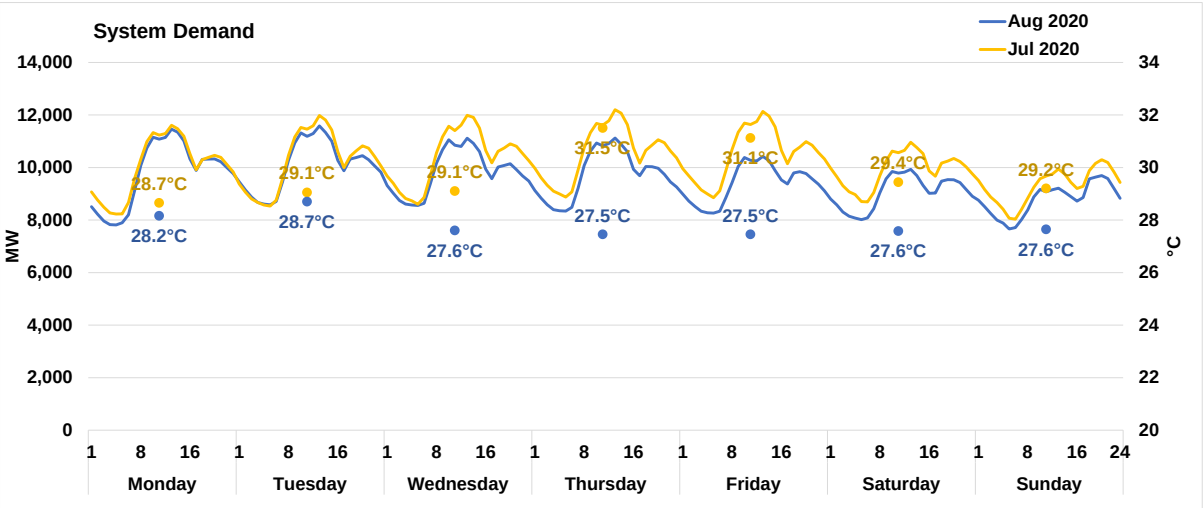


Figure 10. **Average Hourly System Demand, July 2020 and August 2020**

- Comparing to previous year, the average system demand had a marked 6.0 percent decline from 10,128 MW in August 2019 to 9,524 MW in August 2020.
- Similarly, the year-on-year trend had a reduction in average system demand by 5.8 percent during off-peak hours from an average of 9,403 MW to 8,862 MW and 7.3 percent during peak hours from an average of 11,189 MW to 10,373 MW.
- The average temperatures per weekday in August this year were almost similar with last year.

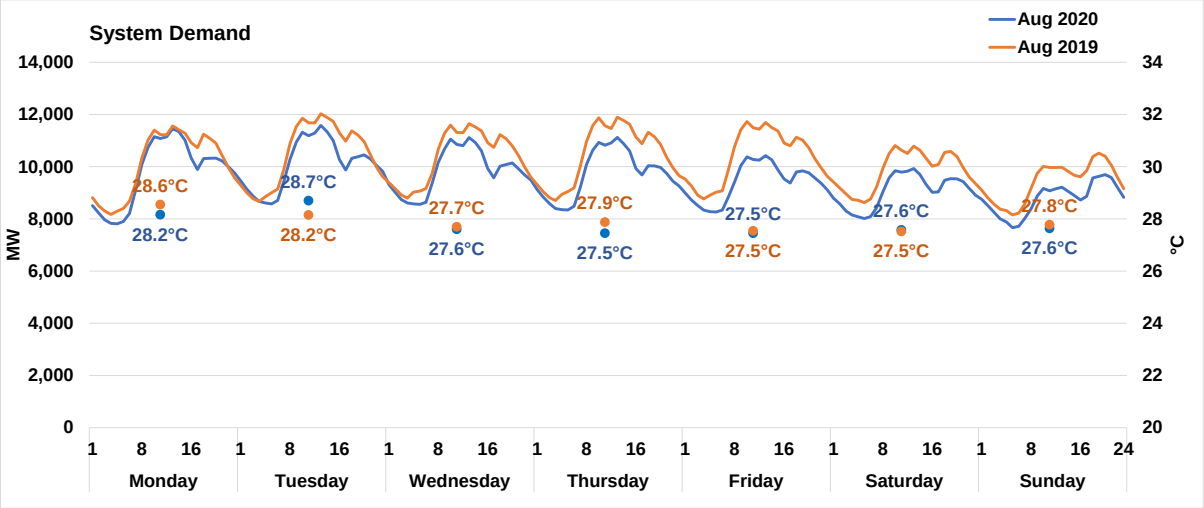


Figure 11. **Average Hourly System Demand, August 2019 and 2020**

- Year 2020 was exempt from the consistent annual pattern of increasing demand every August, which deviant trend was primarily because of the community quarantine period.
- While August 2020 demand was higher than 3 of previous 5 years of August, the market still resulted with lower prices because of the entry of more power generators leading to wider supply margin and together with the expansion of non-contestable quantities effectively putting more pressure on competition.

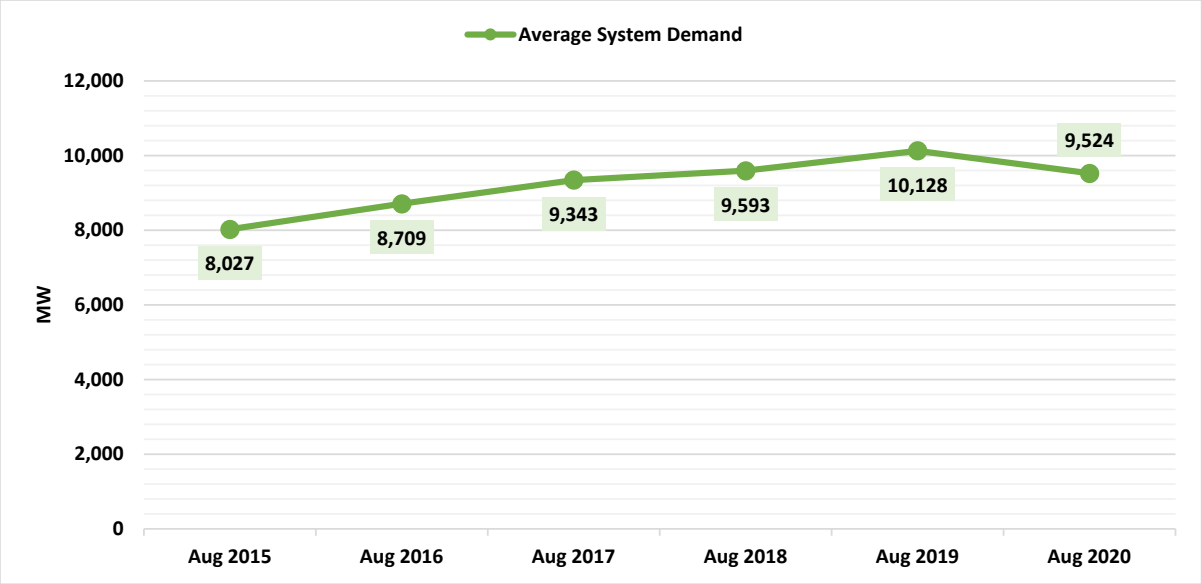


Figure 12. **Average System Demand, August 2015-2020**

III. Spot Transactions

a. Spot Exposure

i. Load

- Spot quantities[5] of load participants in August stood at 12.3 percent of the total metered quantities, lower than last month's 14.4 percent spot exposure.
- Most of the load quantities, at around 86.0 percent of their total consumption, were still transacted outside the spot market and were contracted with generators.

[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

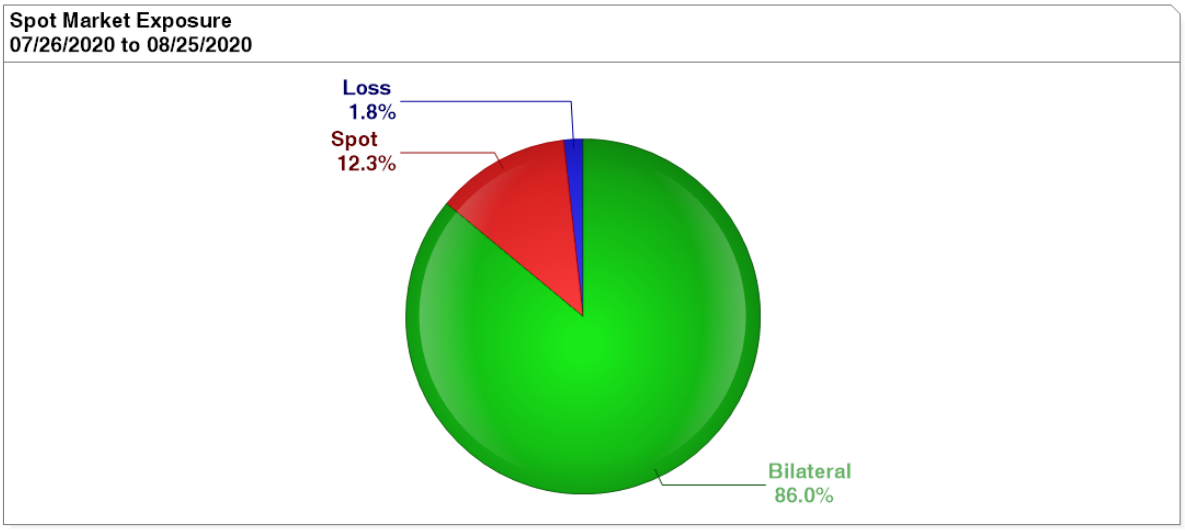


Figure 13. **Spot Market Exposure, August 2020**

ii. Generator

- Bilateral contract quantities were almost consistent in actual level with last month.
- With the decline in demand and unchanging level of BCQs with last month, hourly spot exposure of generators resulted to a drop in percentage share during off-peak and peak hours.
- Spot exposure in off-peak hours averaged at 15 percent while it was 13 percent at peak hours.

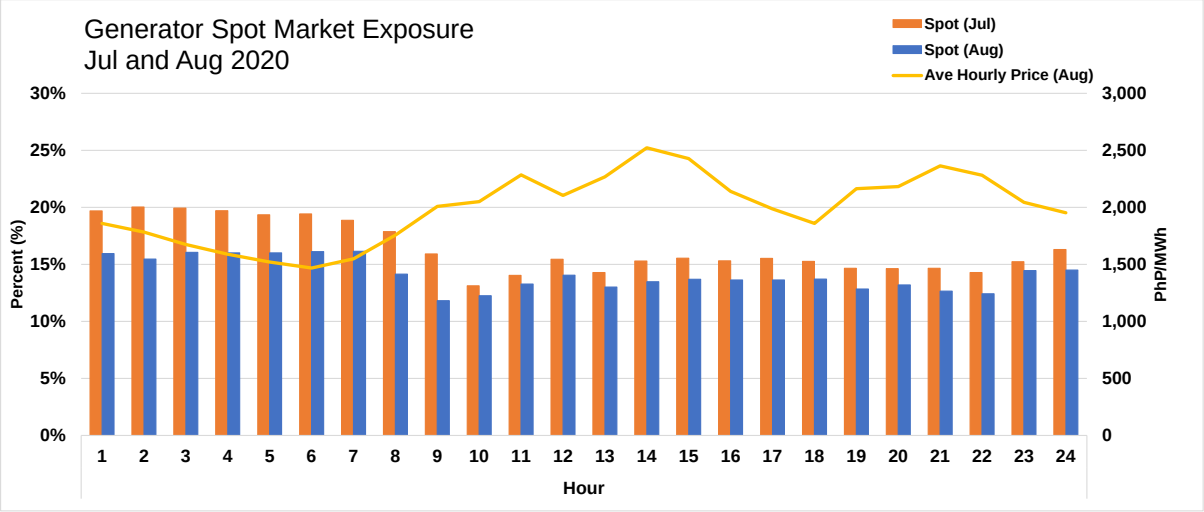


Figure 14. **Hourly Spot Market Exposure, Jul and Aug 2020**

- Based on the spot quantity duration curve[6] of August billing month, hourly spot quantities of generators were 39 MWh or less at about 90 percent of the time with maximum and minimum spot quantities at 354 MWh and -462 MWh, respectively.
- Additionally, all generator spot quantities bought and sold in the market per interval did not exceed 500MWh.

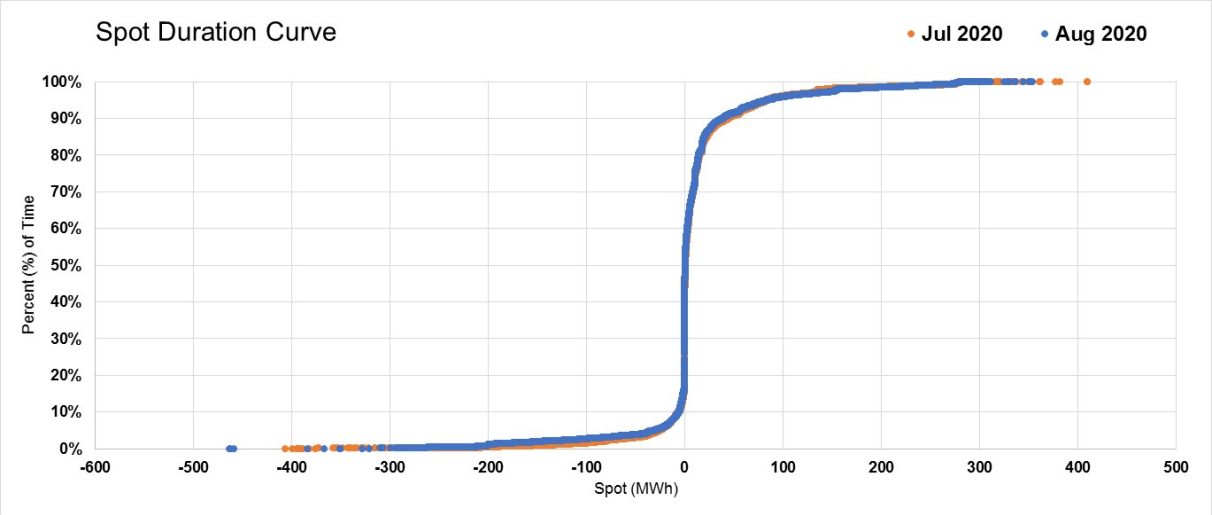
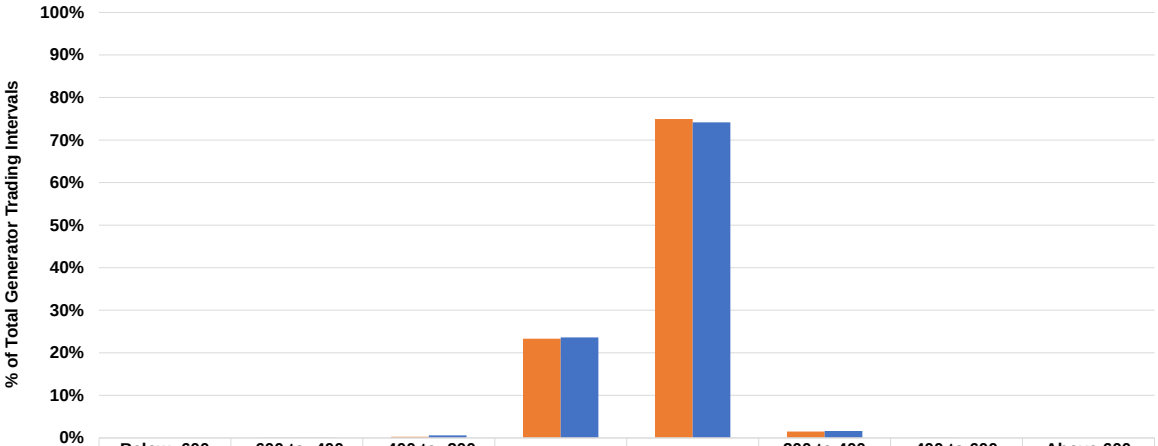


Figure 15. **Spot Duration Curve, Jul and Aug 2020**

- Generator spot quantities for July and August billing months were still much more concentrated on the -200 MWh to 200 MWh range.
- About 76 percent of the total generator spot transactions in August, same with last month, was on the account of energy being sold in the market (positive MWh quantity). Last month's July billing period was observed to have a similar trend wherein most of the generator spot quantities were 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. Positive spot values indicate quantities sold in the market while negative values are quantities bought.



	Below -600 MWh	-600 to -400 MWh	-400 to -200 MWh	-200 to 0 MWh	0 to 200 MWh	200 to 400 MWh	400 to 600 MWh	Above 600 MWh
Jul 2020	0%	0%	0.3%	23.3%	74.9%	1.5%	0.00%	0%
Aug 2020	0%	0%	0.6%	23.6%	74.1%	1.6%	0%	0%

Figure 16. **Spot Frequency Distribution Table, Jul and Aug 2020**

b. Pivotal[7] Plants

- 15 intervals had a Residual Supply Index[8] (RSI) below the 100 percent mark from 41 intervals in July, indicating the less frequent presence of pivotal suppliers.
- Majority of these instances occurred during the onset and latter part of August, as the implementation of GCQ continued, with the market experiencing tighter supply margin with the increasing outage capacity.
- During the August billing month, the market resulted in an average RSI of 114.0 percent indicating that supply was still generally abundant to satisfy the demand.
- Additionally, the MECQ period registered a higher average market RSI of about 114.7 percent as compared to the GCQ period's average of 113.4 percent
- Intervals with RSI below 100 percent had an LWAP of PhP3,585/MWh while those with RSI above 100 resulted with a lower LWAP of PhP1,978/MWh.
- Joining the list of pivotal suppliers this billing month was Pagbilao CFTPP alongside last month's list with Ilijan NGPP, Sta. Rita NGPP, and Sual CFTPP.

[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 unit 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.

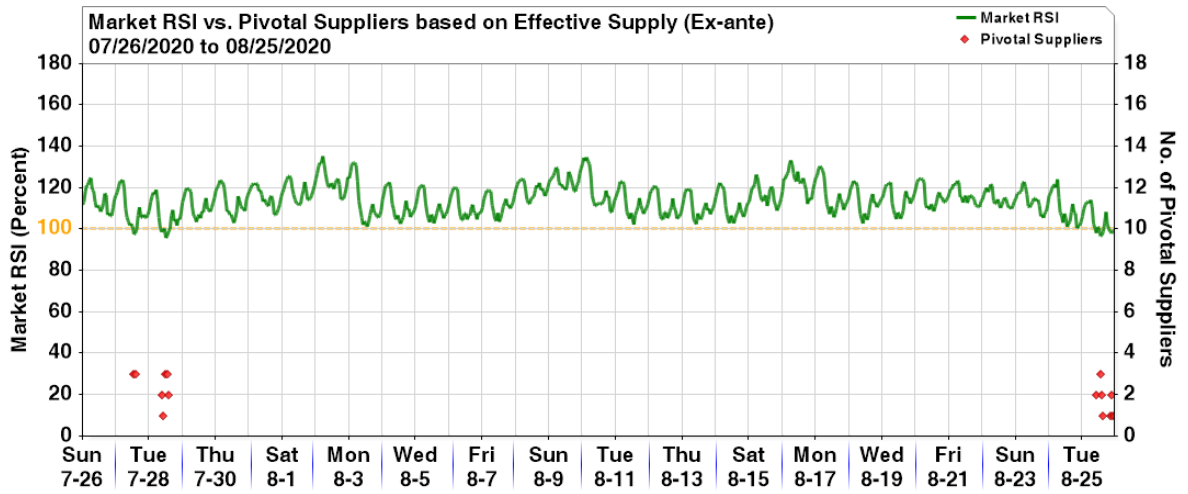


Figure 17. **Market RSI vs Pivotal Suppliers, August 2020**

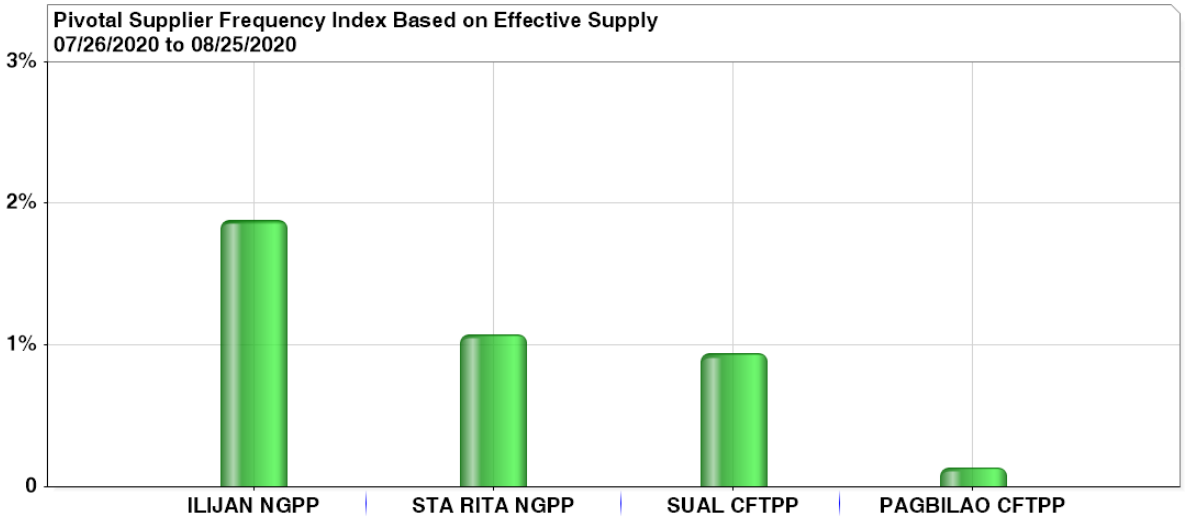


Figure 18. **Top Pivotal Plants, August 2020**

c. Total Trading Amount (TTA)[9] Share

- Semirara Mining and Power Corporation (SMPC) consistently holds the highest TTA share of sellers in the market with approximately 19.8 percent. Power Sector Assets and Liabilities Management (PSALM) closely followed with 19.3 percent with the top 2 sellers having a cumulative 39.2 percent share during the billing month. San Miguel Corporation (SMC) significantly jumped to third in the list, coming from last month's resulting negative TTA.

[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

- Meanwhile, SMPC and AP also had the highest spot share at around 20.8 percent and 18.9 percent, respectively, with SMC still coming in third in spot share with 15.3 percent.
- First Gen Corporation (FGC) retained its 4th spot in terms of TTA share and spot share in the market this month.
- Aboitiz Power (AP), Vivant Energy Corporation (VEC), and Millennium Energy, Inc (MEI) experienced decline in rank based on TTA.
- Gregorio Araneta, Inc. (GAI), and Palm Concepcion Power Corporation (PCPC) was off from last month's list as a result of posting a lower TTA this month and the entry of Global Business Power Corporation (GBPC) and SMC with higher TTAs in the list.

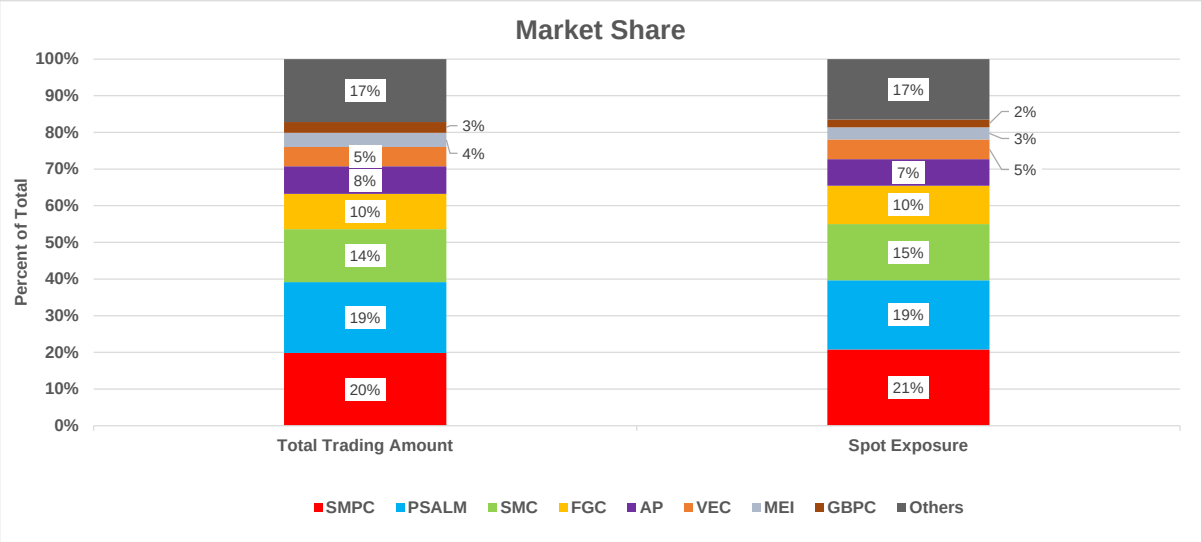


Figure 19. **Total Trading Amount and Spot Exposure Share, August 2020**

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
VISAYAS	COAL	TPC Sangi 1	60	12/17/2019 6:05			Forced Outage	Generator differential trip	Dec 2013
VISAYAS	GEO	Upper Mahiao 2	32	02/14/2020 16:04	08/06/2020 1:07	173.38	Forced Outage	cut-in to the system	Jul 1997
LUZON	GEO	Tiwi 1	60	05/27/2020 0:02			Forced Outage	Low steam supply. Divert steam supply to unit 2	Jan 1979
VISAYAS	GEO	Upper Mahiao 4	32	05/29/2020 0:01	07/27/2020 0:14	59.01	Forced Outage	Loss of power Servo Position Controller	Jul 1997
VISAYAS	GEO	Leyte 3	40.2	05/31/2020 1:27	08/03/2020 0:27	63.96	Forced Outage	completed repair of steam scrubber inlet pipeline leak.	Jun 1983
LUZON	HYD	Kalayaan 1	180	06/17/2020 8:49	08/09/2020 16:17	53.31	Forced Outage	Declared unavailable due to generator radiator water leak	Aug 1982
LUZON	COAL	GN Power 2	316	07/18/2020 19:32	07/30/2020 20:18	12.03	Forced Outage	Tripped due to boiler tube leak.	May 2013
LUZON	OIL	Limay 6	60	07/19/2020 9:06			Forced Outage	Generator excitation problem	Dec 1994
LUZON	COAL	Masinloc 1	315	07/20/2020 12:59			Planned Outage	Maintenance Outage until 13 September 2020	Jun 1998
LUZON	COAL	Pagbilao 2	382	07/22/2020 17:22	08/21/2020 22:41	30.22	Planned Outage	Maintenance outage (GOP)	Mar 1996
LUZON	OIL	SLPGC 4	25	07/23/2020 0:01	08/01/2020 16:39	9.69	Forced Outage	Generator Circuit Breaker trouble.	Mar 2017
VISAYAS	COAL	CEDC 2	82	07/23/2020 7:05	07/26/2020 12:16	3.22	Forced Outage	Furnace Pressure High	Jun 2010
LUZON	COAL	Masinloc 2	344	07/24/2020 1:34	07/26/2020 6:08	2.19	Forced Outage	Unplanned outage due to boiler tube leak.	Jun 1998
VISAYAS	GEO	Nasulo	48.3	07/26/2020 0:11	07/26/2020 2:25	0.09	Maintenance Outage	Scheduled maintenance	Apr 2014
VISAYAS	COAL	CEDC 3	82	07/26/2020 8:02	07/26/2020 17:27	0.39	Forced Outage	GENERATOR PROTECTION TRIP	Jan 2011
LUZON	COAL	Masinloc 2	344	07/26/2020 9:37	07/26/2020 13:20	0.15	Forced Outage	Master fuel trip	Jun 1998
LUZON	HYD	Ambuklao 2	35	07/26/2020 21:01	07/26/2020 22:14	0.05	Forced Outage	Unable to synchronized due to broken shear pin	Dec 1956
VISAYAS	GEO	Upper Mahiao 4	32	07/27/2020 0:15			Forced Outage	Emergency repair due to steam leak	Jul 1997
LUZON	COAL	SLTEC 1	121	07/27/2020 15:24	08/23/2020 18:26	27.13	Forced Outage	Boiler tube leak	Sep 2014
LUZON	COAL	SBPL	455	07/28/2020 5:48	07/28/2020 11:27	0.24	Forced Outage	Tripped at 295MW load. Probable reported cause of outage is lightning strike.	Apr 2019
LUZON	OIL	Limay 3	60	07/28/2020 5:48	07/29/2020 11:53	1.25	Forced Outage	Tripped at 40.16MW load. Reported cause of outage is high vibration at bearing 1 and 2.	May 1993
VISAYAS	COAL	CEDC 1	82	07/28/2020 11:18	07/28/2020 12:47	0.06	Forced Outage	AFFECTED BY TRIPPING OF CEDC - CALUNG2X L1	Apr 2010
VISAYAS	COAL	CEDC 2	82	07/28/2020 11:18	07/28/2020 18:04	0.28	Forced Outage	AFFECTED BY TRIPPING OF CEDC - CALUNG2X L1	Jun 2010
VISAYAS	COAL	CEDC 3	82	07/28/2020 11:18	07/28/2020 15:39	0.18	Forced Outage	AFFECTED BY TRIPPING OF CEDC - CALUNG2X L1	Jan 2011
VISAYAS	COAL	THVI 1	169	07/28/2020 11:18	08/02/2020 14:45	5.14	Forced Outage	AFFECTED BY TRIPPING OF CEDC - CALUNG2X L1	Dec 2017
VISAYAS	COAL	THVI 2	169	07/28/2020 11:18	08/01/2020 10:12	3.95	Forced Outage	AFFECTED BY TRIPPING OF CEDC - CALUNG2X L1	Dec 2017
VISAYAS	OIL	Bohol 4	4	07/28/2020 13:20	07/30/2020 17:36	2.18	Forced Outage	Emergency cut-out from the system due to defective cooling fan motor.	Sep 1978
VISAYAS	OIL	Bohol 3	4.2	07/28/2020 13:23	08/05/2020 13:10	7.99	Forced Outage	Emergency cut-out from the system due to defective cooling fan motor.	Sep 1978
VISAYAS	OIL	Bohol 2	4	07/28/2020 13:37	07/30/2020 17:31	2.16	Forced Outage	Emergency cut-out from the system due to defective cooling fan motor.	Sep 1978
LUZON	OIL	Limay 5	60	07/28/2020 20:01	07/28/2020 21:09	0.05	Forced Outage	Tripping of 4160V supply.	Dec 1994
LUZON	OIL	Limay 1	60	07/29/2020 5:42	07/30/2020 9:40	1.17	Forced Outage	Start up or shutdown control (NOT OFF) alarm	May 1993
LUZON	COAL	Calaca 1	300	07/30/2020 21:37	08/03/2020 12:15	3.61	Forced Outage	Reheater outlet leak.(RECLASSIFIED FROM FORCE. OMC OUTAGE)	Sep 1984
LUZON	COAL	GN Power 1	316	07/31/2020 13:26	08/09/2020 4:47	8.64	Forced Outage	Autotripped due to loss of power supply at 6kV bus.	May 2013
LUZON	HYD	Ambuklao 1	35	08/01/2020 3:53	08/01/2020 4:55	0.04	Forced Outage	Tripped due to broken shear pin.	Dec 1956
VISAYAS	COAL	THVI 1	169	08/02/2020 16:55	08/02/2020 17:50	0.04	Forced Outage	AUTO TRIP	Dec 2017
VISAYAS	GEO	Leyte 3	40.2	08/03/2020 0:28	08/06/2020 23:18	3.95	Planned Outage	Scheduled maintenance activity	Jun 1983
LUZON	COAL	Calaca 1	300	08/03/2020 15:06	08/03/2020 22:53	0.32	Forced Outage	Tripped while on load stabilization from start-up	Sep 1984
LUZON	COAL	SLPGC 2	150	08/05/2020 16:46			Forced Outage	Boiler tube leak.	Jan 2015
VISAYAS	GEO	Upper Mahiao 2	32	08/06/2020 1:08			Forced Outage	Turbine over speed failure	Jul 1997
VISAYAS	COAL	CEDC 3	82	08/06/2020 8:02	08/06/2020 19:09	0.46	Forced Outage	GENERATOR BREAKER TRIP	Jan 2011
LUZON	GEO	Bacman 1	60	08/06/2020 11:04	08/07/2020 2:29	0.64	Forced Outage	Condenser level high.	Sep 1993
VISAYAS	GEO	PGPP1 Unit 2	37.5	08/06/2020 15:14	08/06/2020 17:03	0.08	Forced Outage	Ongoing investigation on the cause of tripping.	Aug 1983
VISAYAS	COAL	PALM 1	135	08/06/2020 16:01	08/07/2020 7:53	0.66	Forced Outage	Affected by line disturbance along 138kv Negros-Panay submarine cable.	Mar 2016
LUZON	GEO	Makban 8	20	08/07/2020 3:30	08/07/2020 6:35	0.13	Forced Outage	Vacuum pump trouble	Apr 1979
LUZON	COAL	GN Power 2	316	08/07/2020 11:52	08/08/2020 14:04	1.09	Forced Outage	Tripped at 316MW load. System Frequency is 59.068hz. Turbine protection actuation.	May 2013
LUZON	HYD	Ambuklao 1	35	08/09/2020 4:19	08/09/2020 5:28	0.05	Forced Outage	Tripped at 24MW load. As RR-FIRM Ancillary provider.	Dec 1956
LUZON	COAL	GN Power 2	316	08/09/2020 6:52	08/09/2020 18:01	0.46	Forced Outage	Correction of critical hotspot at Main Unit Transformer.	May 2013
LUZON	COAL	GN Power 1	316	08/09/2020 9:54	08/09/2020 15:39	0.24	Forced Outage	Turbine driven trip.	May 2013
LUZON	COAL	Pagbilao 1	382	08/10/2020 1:26	08/15/2020 22:52	5.89	Forced Outage	Reason still to be determined	Mar 1996
LUZON	HYD	Ambuklao 2	35	08/10/2020 5:52	08/10/2020 6:51	0.04	Forced Outage	Broken shear pin	Dec 1956
LUZON	GEO	Bacman 1	60	08/10/2020 8:40	08/11/2020 5:40	0.88	Forced Outage	Condenser Level High	Sep 1993
LUZON	HYD	Casecnan 2	82.5	08/12/2020 3:53	08/17/2020 13:23	5.40	Forced Outage	High Oil Temperature at turbine side	Apr 2002
LUZON	HYD	San Roque 3	145	08/12/2020 9:01	08/12/2020 16:01	0.29	Maintenance Outage	Maintenance Outage	May 2003
LUZON	COAL	Masinloc 3	335	08/12/2020 15:05	08/14/2020 7:04	1.67	Forced Outage	Main fuel trip. On commissioning Test	Mar 2019
VISAYAS	GEO	PGPP1 Unit 3	37.5	08/13/2020 6:03	08/13/2020 19:57	0.58	Maintenance Outage	Offline to conduct replacement of cooling tower fan A motor and shafting.	Aug 1983
LUZON	HYD	Kalayaan 2	180	08/14/2020 8:51	08/14/2020 12:39	0.16	Forced Outage	Generator differential actuated.	Aug 1982
VISAYAS	COAL	CEDC 3	82	08/14/2020 9:14	08/15/2020 6:51	0.90	Forced Outage	UNDER ASSESSMENT	Jan 2011
LUZON	HYD	San Roque 1	145	08/14/2020 19:34	08/15/2020 12:09	0.69	Forced Outage	Excitation problem.	May 2003
VISAYAS	OIL	PDPP3 C	12	08/15/2020 16:44	08/21/2020 12:13	5.81	Forced Outage	Affected by line disturbance	Mar 2005
VISAYAS	OIL	PDPP3 H	13	08/15/2020 16:44	08/21/2020 12:20	5.82	Forced Outage	Affected by line disturbance	Mar 2005
LUZON	GEO	Makban 7	20	08/15/2020 17:26	08/16/2020 17:57	1.02	Forced Outage	Affected by the hotspot correction at DS 8-01DS03MKC. phase A	Apr 1979
LUZON	GEO	Makban 8	20	08/15/2020 17:26	08/16/2020 4:58	0.48	Forced Outage	Affected by the hotspot correction at DS 8-01DS03MKC. phase A	Apr 1979
LUZON	COAL	SLPGC 1	150	08/15/2020 18:59			Forced Outage	Boiler tube leak.	Jan 2015
LUZON	COAL	SMC 4	150	08/16/2020 2:21	08/17/2020 3:04	1.03	Forced Outage	Feedwater by-pass control valve trouble	Sep 2018
LUZON	GEO	Makban 2	63.2	08/18/2020 7:42	08/18/2020 8:17	0.02	Forced Outage	Auxillary supply trouble	Apr 1979
LUZON	GEO	Tiwi 2	60	08/18/2020 13:59	08/18/2020 15:15	0.05	Forced Outage	Shutdown to re-connect Tiwi A Main transformer 1 and 2 to the grid	Jan 1979
LUZON	GEO	Makban 2	63.2	08/19/2020 3:27			Maintenance Outage	Unit main transformer maintenance.	Apr 1979
LUZON	HYD	San Roque 1	145	08/19/2020 9:01	08/19/2020 16:01	0.29	Maintenance Outage	Maintenance Outage	May 2003
LUZON	COAL	SMC 3	150	08/19/2020 10:18			Forced Outage	Boiler evaporator leak.	Nov 2017
LUZON	GEO	Makban 4	63.2	08/19/2020 14:41	08/19/2020 15:39	0.04	Forced Outage	Liquid vacuum pump problem.	Apr 1979
LUZON	OIL	Limay 7	60	08/22/2020 0:01			Planned Outage	On maintenace outage until 28 Aug 2020.	Dec 1994
LUZON	COAL	Calaca 2	300	08/23/2020 16:24	08/23/2020 18:23	0.08	Forced Outage	Boiler unit flame failure.	Sep 1984
LUZON	COAL	SLTEC 1	121	08/24/2020 0:21	08/24/2020 2:50	0.10	Maintenance Outage	Overspeed test.	Sep 2014
VISAYAS	GEO	Malitbog 2	72	08/24/2020 15:28			Forced Outage	Under assessment.	Jul 1997
VISAYAS	GEO	Malitbog 3	72	08/24/2020 15:28	08/25/2020 2:01	0.44	Forced Outage	Under assessment.	Jul 1997
LUZON	COAL	Sual 1	647	08/24/2020 20:28			Forced Outage	Boiler tube leak.	Oct 1999
LUZON	COAL	SBPL	455	08/25/2020 17:17			Forced Outage	Condenser tube leak.	Apr 2019
VISAYAS	GEO	PGPP2 Unit 1	20	08/25/2020 17:24			Forced Outage	Ongoing investigation on the cause of tripping.	Aug 1983