Monthly Market Assessment Report

26 June 2020 to 25 July 2020

AUGUST 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 July 2020 Billing Month

I. Assessment of the Market

- 98 percent of the total market price outcome in July 2020 was a result of normal pricing condition, recording the highest monthly percent share of normal intervals as of 2020.
- The remainder, however, required other forms of pricing methodologies
    - Price Substitution Methodology was applied to a low 2 percent of the total outcomes. About 46 percent of which accounted for by the frequent congestion events on Samboan-Amlan line 1 in Visayas.
    - Prices with pricing error occurred around 0.3~0.4 percent of the time 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), July 2020**

Pricing Condition	No. of Intervals			
	Luzon	% of Time	Visayas	% of Time
Normal	704	97.8%	705	97.9%
Congestion	13	1.8%	13	1.8%
Pricing Error Notice	3	0.4%	2	0.3%
Administered Price	0	0%	0	0%
Secondary Cap	0	0%	0	0%
Total	**720**	**100%**	**720**	**100%**

- For intervals under normal condition, low prices were observed due to supply sufficiency despite the expectation of gradually increasing prices because of the relaxed protocols for the General Community Quarantine (GCQ).
- Supply situation saw an improvement driven by the recorded low total outage level from power plants while average demand fell slightly after reaching the highest monthly average last month. The demand, however, was still on an unusual lower level in comparison with past years' July demand.

Notable Highlight:

1. *Unusual year-on-year decline in demand*
   - *Observed low level of demand due to imposed GCQ*
2. *Observed incorrect mapping of data of trading participants in June billing month*
   - *Calculation of settlement quantities between two generators were interchanged*

II. Market Outcome

a. Price

i. Price and Supply Margin

- On 01 June, the transition of high-risk areas to the General Community Quarantine (GCQ), and low-risk areas to Modified General Community Quarantine (MGCQ), allowing for a wider range of economic activities in the country, resulted to the increase in market price in June. While quarantine protocols in June continue to be implemented in July, there were no episodes of price spikes this period leading to a monthly dip in average price.
- Meanwhile, an average supply margin at 2,381 MW for July 2020 was noted to have been the highest recorded supply margin in all of July 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.
- Load-weighted average price (LWAP) of July 2020 at PhP2,124/MWh was likewise the lowest recorded monthly price when compared to the July billing months in the last 5 years (2015-2019).

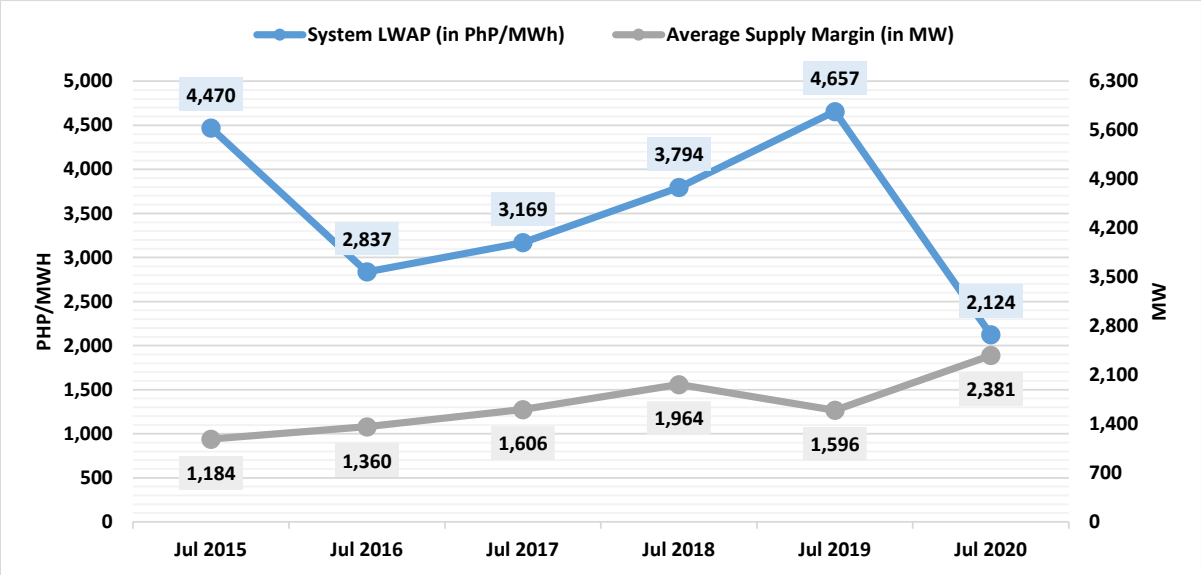


Figure 1. **System LWAP and Supply Margin, July 2015-2020**

- Monthly load weighted average price (LWAP) decreased by 35 percent as compared to June.
  - Monthly average peak prices decreased by 41 percent from PhP3,944/MWh to PhP2,348/MWh.
  - Monthly average off-peak prices decreased by 27 percent from PhP2,581 to PhP1,882/MWh.
- The average supply margin further widened by 7.2 percent from 2,221 MW in June 2020 to 2,381 MW in July 2020

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

Year	Month	Average Supply Margin	% Change in Average Supply Margin	System LWAP	% Change in System LWAP
2015	June	845	40%	6,398	-30%
	July	1,184		4,470	
2016	June	966	41%	4,693	-40%
	July	1,360		2,837	
2017	June	1,553	3%	3,414	-7%
	July	1,606		3,169	
2018	June	2,050	-4%	4,073	-7%
	July	1,964		3,794	
2019	June	968	65%	7,770	-40%
	July	1,596		4,657	
2020	**June**	**2,221**	**7%**	**3,265**	**-35%**
	July	**2,381**		**2,124**	

- Hourly resolution of supply margin showed the lowest recorded supply margin at 244 MW on 23 July 2020 at 1400H as a combined result of the high plant outage reaching 3,009 MW and high level of demand at 13,459 MW.
- Also, occurring on the same date and interval was the single highest hourly LWAP recorded in the market for July 2020 at PhP19,707/MWh.
- Majority of the time, the hourly LWAP was generally stable throughout the month with market prices hovering below the PhP4,000/MWh level.
- As of the end of the July billing month, prices fell by 8 percent from the MECQ period's (16 to 31 May 2020) average of PhP2,907/MWh to the GCQ period's (01 June to 25 July 2020) average of PhP2,672/MWh.

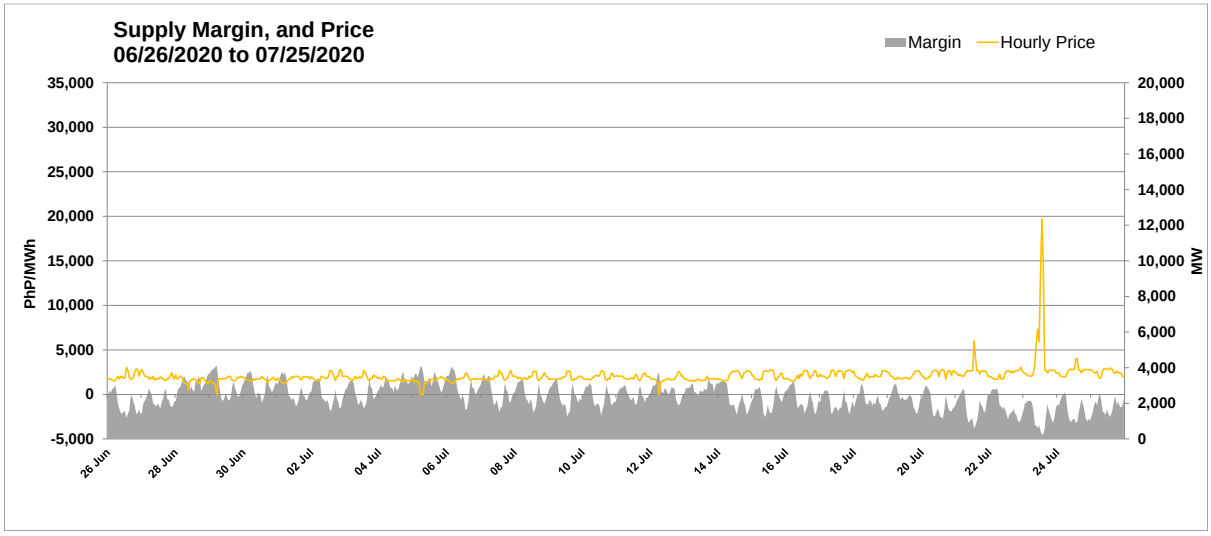


Figure 2. **Hourly Supply Margin and Price, July 2020**

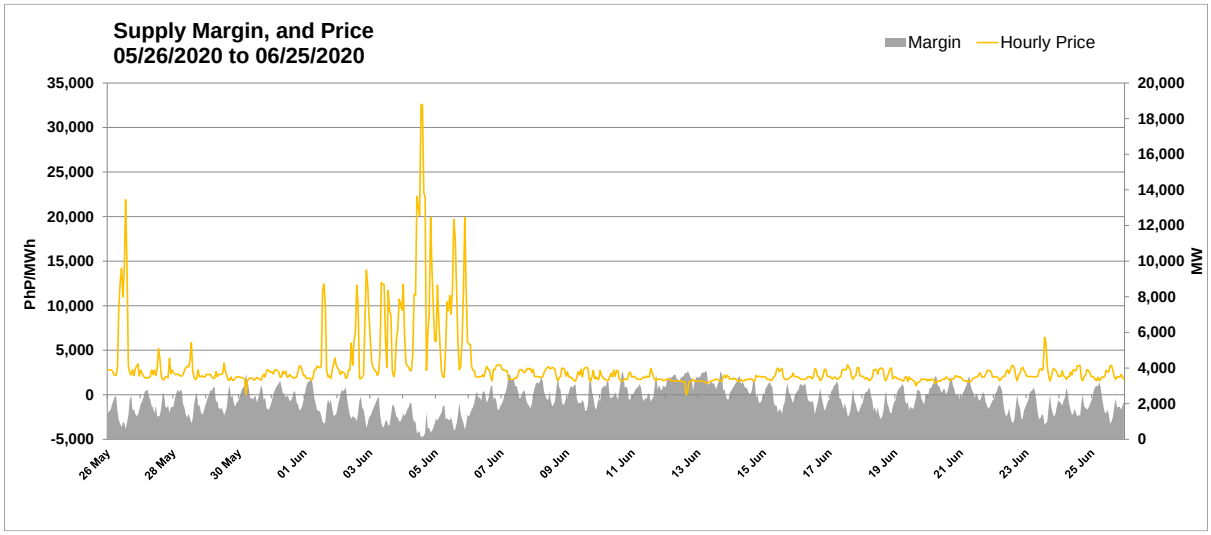


Figure 3. **Hourly Supply Margin and Price, June 2020**

ii. Price Duration Curve[1]

- For peak hours, about 90 percent of the load nodal prices fell below PhP2,720/MWh in July and PhP5,765/MWh in June while distribution of prices during the off-peak hours were seen below PhP2,444/MWh in July and PhP2,961/MWh in June in about the same percentage of time.
- Maximum off-peak and peak load nodal price reached PhP3,363/MWh and PhP24,124/MWh in July, respectively.
- Presence of load nodal prices above PhP10,000/MWh during peak hours this month was the result of the relatively thin supply margin on 23 July 1300H-1500H.

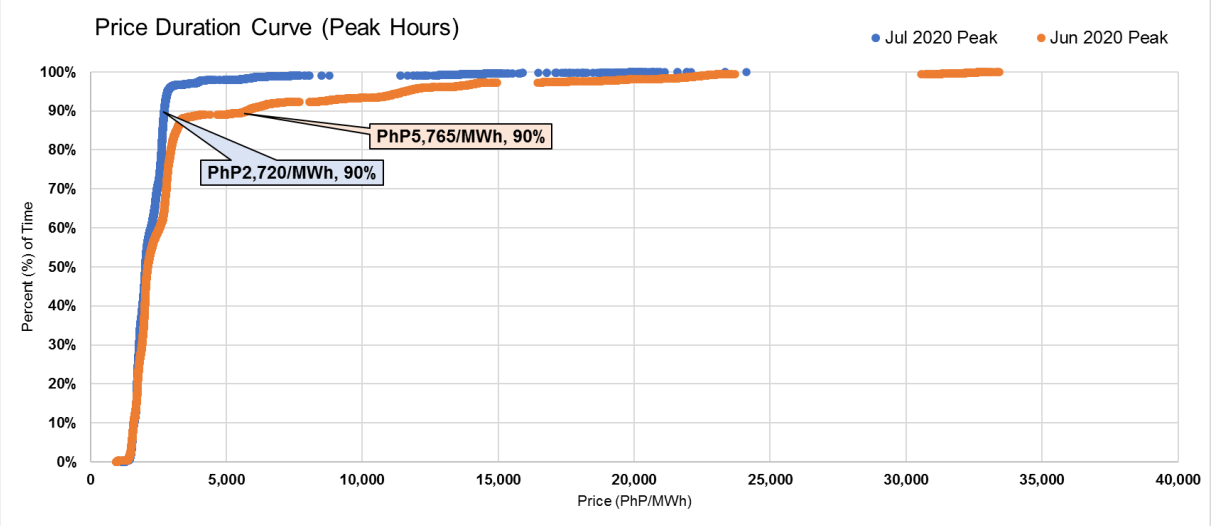


Figure 4. **Load Nodal Price Duration Curve (Peak), June 2020 and July 2020**

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

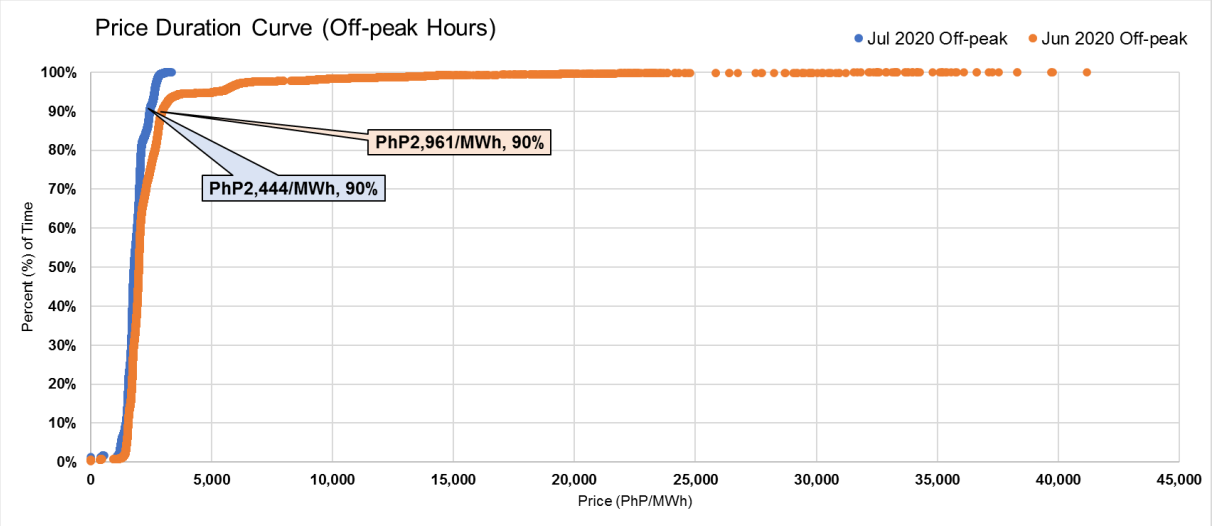


Figure 5. **Load Nodal Price Duration Curve (Off-peak), June 2020 and July 2020**

b. Supply

- A net increase of 10 MW for this month from a total of 20,177.67 MW to 20,187.67 MW was recorded in the WESM registered capacity.
  - Increase in capacity of Bauang DPP from 200 MW to 210 MW, Irisan 1 HEP from 3.8 MW to 3.9 MW, Calumangan DPP units 3 and 5 from 4.2 MW to 4.3 MW and 6.4 MW to 6.6 MW, respectively.
  - Decrease in capacity of Ecopark Energy Solar plant from 4.4 MW to 4 MW.
- Available capacity[2] constituted an average of 15,242 MW or 75 percent of the total registered capacity.
- Capacity not offered comprised an average of 2,804 MW or 14 percent.
- Outage capacity accounted for an average of 2,139 MW or 11 percent.

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

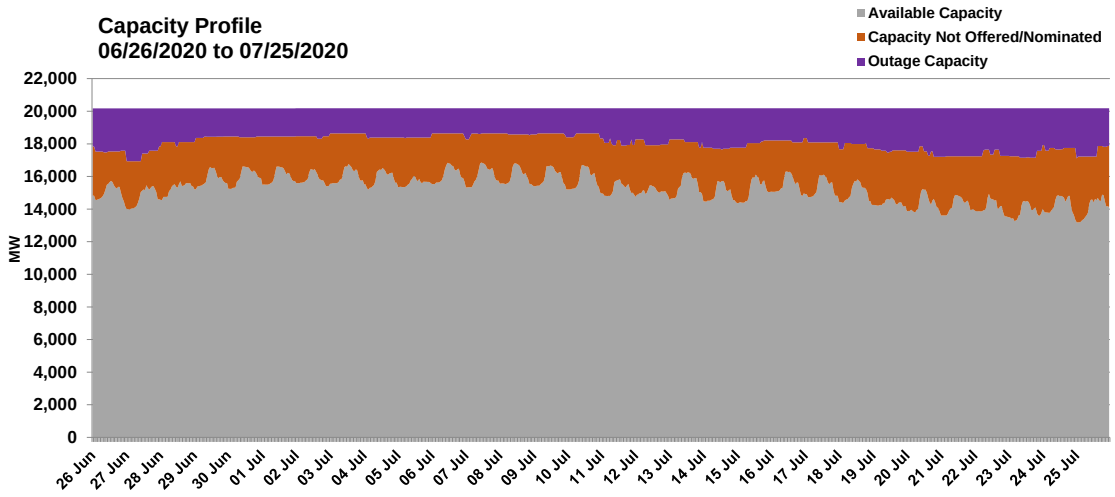


Figure 6. **Capacity Profile, July 2020**

i. Outage Capacity[3]

- Outage capacity declined by 3.7 percent from an average of 2,222 MW last month to an average of 2,139 MW this month.
- Planned outages comprised 621 MW on average or 29 percent of the total outages. Majority or about 65 percent was composed of forced outages averaging at 1,394 MW, and maintenance outages at 58 MW or 3 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 2,318 MW, almost of the same level as its opening at 2,337 MW.
- Coal plants majorly contributed to the level of planned and forced outages while natural gas plants in maintenance outages.

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

Plant Type	Planned Outage (29%)	Forced Outage (65%)	Maintenance Outage (3%)	Deactivated Shutdown (3%)
Coal	61%	44%	39%	0%
Natural Gas	32%	0.1%	61%	0%
Geothermal	0%	20%	0%	100%
Hydro	7%	13%	0%	0%
Oil-based	0%	23%	0%	0%
TOTAL	**100%**	**100%**	**100%**	**100%**

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

- Planned outages had a noticeable increase of about 129 percent owing to the scheduled outages from the following coal and natural gas plants: Pagbilao CFTPP units 1 and 2 (764 MW), Sta Rita NGPP units 1-4 (1,042.5 MW), San Gabriel NGPP (420 MW), Masinloc CFTPP unit 1 (315 MW).
- In contrast, forced outages had a decline in monthly average level from 1,517 MW to 1,394 MW although a high level of forced outage on the latter part of the July billing month was noted.
- The high level of forced outages accounted for by the long outages from Masinloc CFTPP unit 2 and 3 (679 MW), TVI CFTPP unit 2 (169 MW), SLTEC CFTPP unit 1 (121 MW), and Mariveles CFTPP unit 2 (316 MW), which the market endured at the tail end of the period.
- Maintenance outage was kept at a low level as San Lorenzo NGPP units 1 and 2 (527 MW) which went on outage last month resumed operations at the onset of the month. The surge in maintenance outage on 24 July accounted for the short outage of Sual CFTPP unit 1 (647 MW).

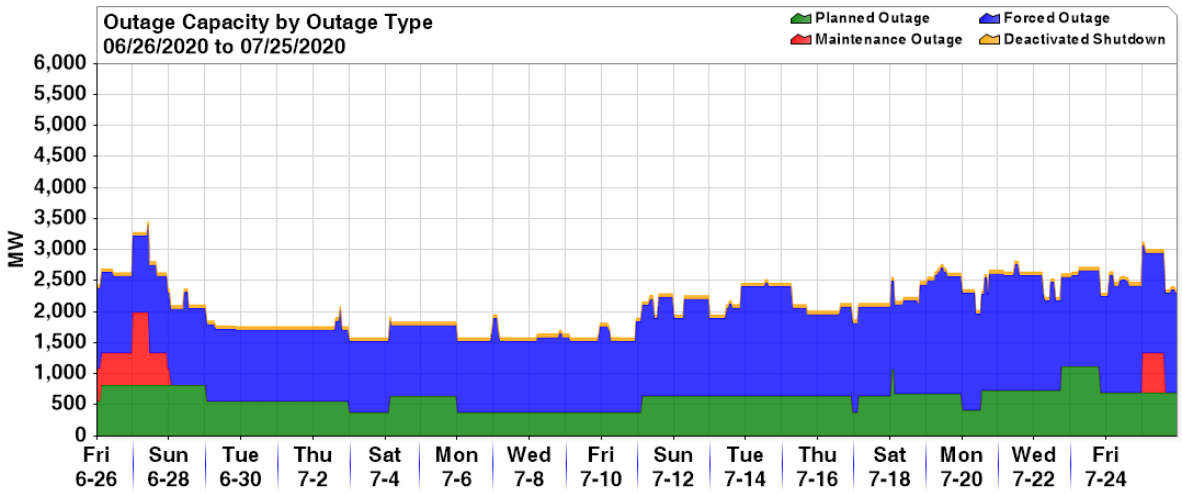


Figure 7. **Outage Capacity by Outage Category, July 2020**

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

Outage Category	July 2020 (in MW)			June 2020 (in MW)		
	Max	Min	Average	Max	Min	Average
Planned	1,117	382	621	647	85	271
Maintenance	1,174	0	58	712	0	416
Forced	2,032	1,146	1,394	2,578	995	1,517
Deactivated Shutdown	55	55	55	55	55	55
TOTAL	**3,460**	**1,583**	**2,129**	**3,323**	**1,285**	**2,259**

- In terms of type of power plants, coal generators accounted for almost half of the outages at 47 percent. This was followed by oil-based

generators at 17 percent. Geothermal plants came in close with 14 percent share while hydro and natural gas plants came in last at 11 percent each.

- Starting 23 July up to the end of the billing month, outages from coal generators constituted 68 percent of the total outages in average.
- Natural gas plants posted a noticeable increase in outages from 11-23 July due to the conduct of planned outages from Sta Rita NGPP units 3 and 4 (530 MW) and San Gabriel NGPP (420 MW).
- Hydro plants had a 109 percent uptick in average outage capacity owing to the prolonged forced outage of Kalayaan HEP unit 1 (180 MW) which started in late June.
- Majority of the average outage of oil-based plants at about 368 MW this month consisted of the prolonged outage of Malaya TPP unit 1 (300 MW) due to problems in the unit generator since 03 May 2019 and the short outage of Malaya TPP unit 2 (350 MW) on 20-23 July.
- Geothermal plants recorded a minimal decline in outage of about 3 percent coming into July.

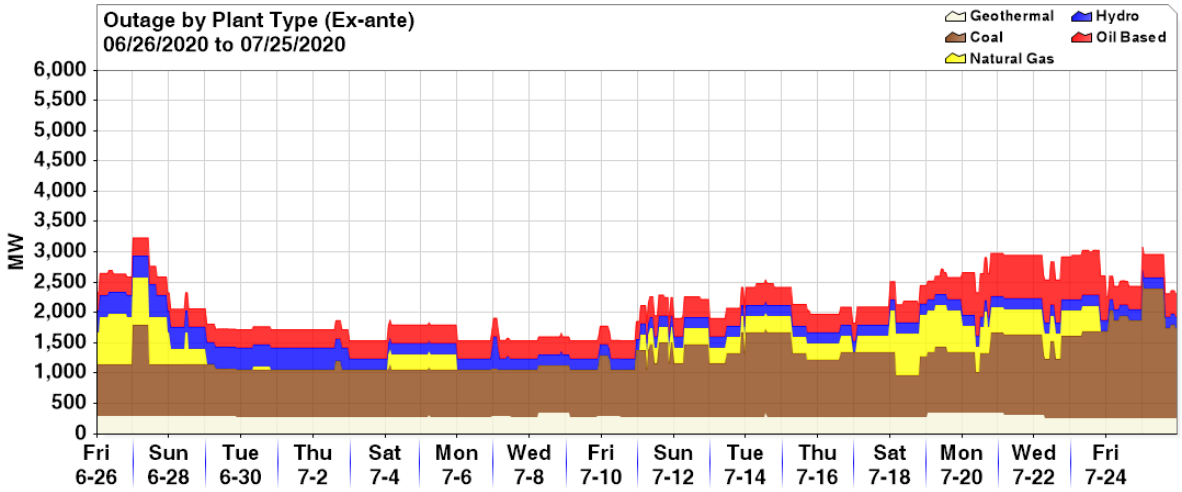


Figure 8. **Outage Capacity by Plant Type, July 2020**

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

Plant Type	July 2020 (in MW)			June 2020 (in MW)		
	Max	Min	Average	Max	Min	Average
Coal	2,267	666	1,015	2,658	480	1,224
Natural Gas	833	0	239	527	0	282
Geothermal	358	254	292	426	270	301
Hydro	540	180	225	395	0	108
Oil-based	735	300	368	420	300	307
TOTAL	**3,239**	**1,542**	**2,139**	**3,400**	**1,245**	**2,222**

c. System Demand

- System demand was almost unchanged with last month with an average of 10,146 MW. This was a minimal 0.5 percent reduction from last month's average of 10,197 MW.
- Demand was observed to gradually increase throughout the implementation of GCQ but later stagnated in July.
- In comparison to last month, the average off-peak demand at 9,409 MW this month saw a 1.4 percent decrease while average peak demand at 10,943 MW was relatively of the same level as last month.
- Maximum system demand in July reached 12,443 MW for peak hours on 10 July and 11,171 MW for off-peak hours on 02 July.
- Minimum system demand in July reached 9,337 MW for peak hours and 7,692 MW for off-peak hours which occurred on 04 July and 05 July, respectively.
- Average temperature on most days were lower than last month with the month-on-month average noting a decline as well.

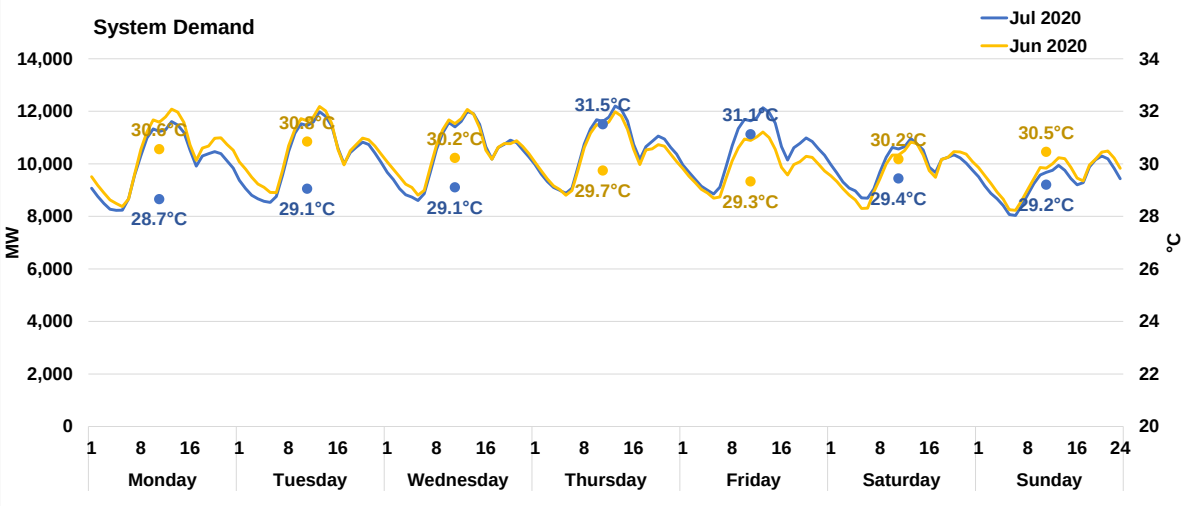


Figure 9. **Average Hourly System Demand, June 2020 and July 2020**

- Comparing to previous year, the average system demand had a marked 3.6 percent decline from 10,520 MW in July 2019 to 10,146 MW in July 2020
- Similarly, the year-on-year trend had a reduction in average system demand by 3.0 percent during off-peak hours from an average of 9,700 MW to 9,409 MW and 5.2 percent during peak hours from an average of 11,545 MW to 10,943 MW
- The average temperature in July this year was generally higher than last year.

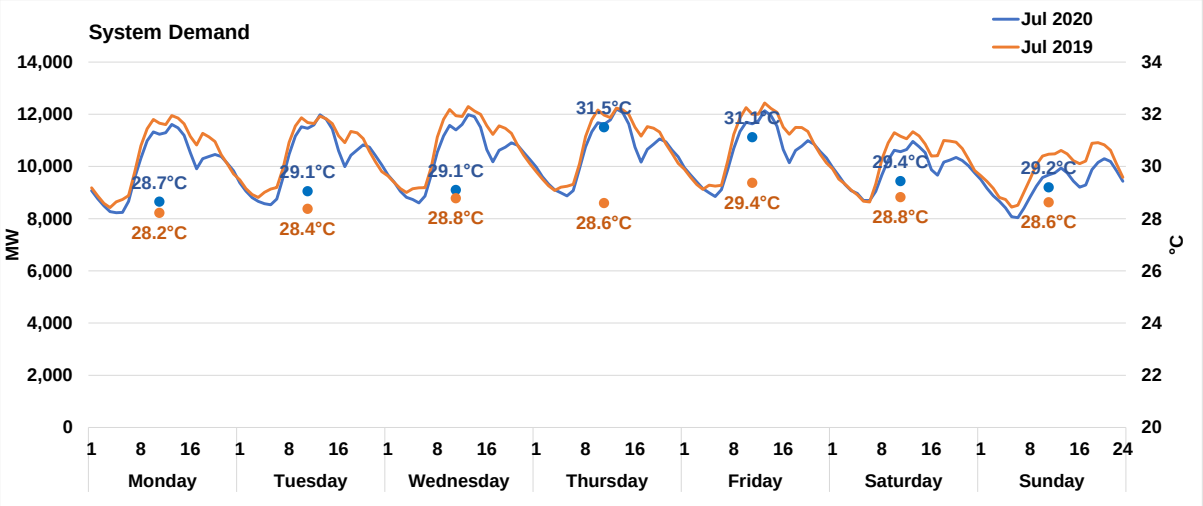


Figure 10. **Average Hourly System Demand, July 2019 and July 2020**

- Year 2020 was exempt from the consistent annual pattern of increasing demand every July, which deviant trend was primarily because of the community quarantine period.
- While July 2020 demand was higher than in previous years of July (other than July 2019), the market still had lower prices as a result 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.

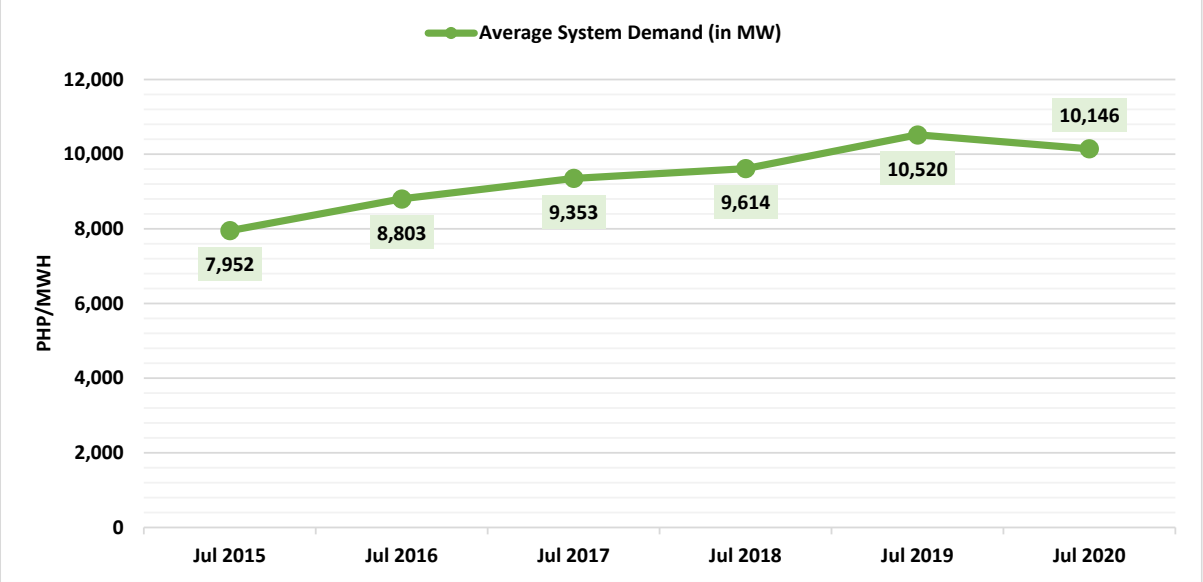


Figure 11. **Average System Demand, July 2015-2020**

III. Spot Transactions

a. Spot Exposure

i. Load

- Spot quantities[4] of load participants in July stood at 14.4 percent of the total metered quantities, almost similar with last month's 14.6 percent spot exposure.
- Most of the load quantities, at around 83.7 percent of their total consumption, were still transacted outside the spot market and were contracted with generators.

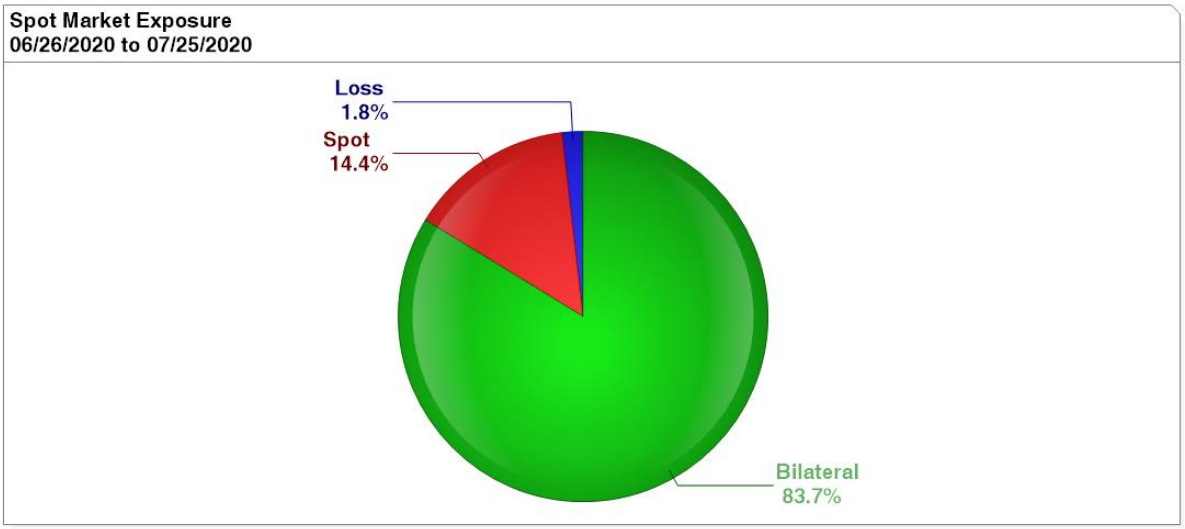


Figure 12. **Spot Market Exposure, July 2020**

ii. Generator

- Hourly spot exposure this month was seen to be generally increasing in off-peak hours while decreasing in peak hours as compared to last month, resulting with less generator quantities being transacted in the market at higher prices.
- Spot exposure in off-peak hours averaged at 18 percent while it was 15 percent at peak hours.

[4] 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

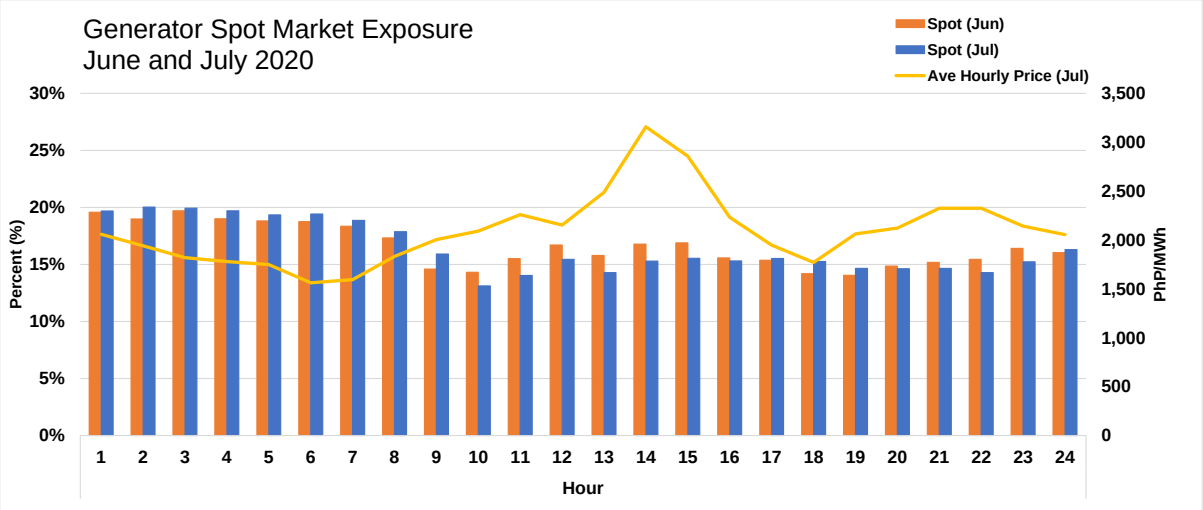


Figure 13. **Hourly Spot Market Exposure, June and July 2020**

- Based on the spot quantity duration curve[5] of July billing month, hourly spot quantities of all generators fell below 44 MWh at about 90 percent of the time with maximum and minimum spot quantities at 410 MWh and -406 MWh, respectively.
- The presence of 679 MWh of purchased energy, higher than the largest generator registered in the market at 647 MW, in the spot market at a single interval last June was due to a high BCQ of a certain coal generating unit that was on outage during the interval.

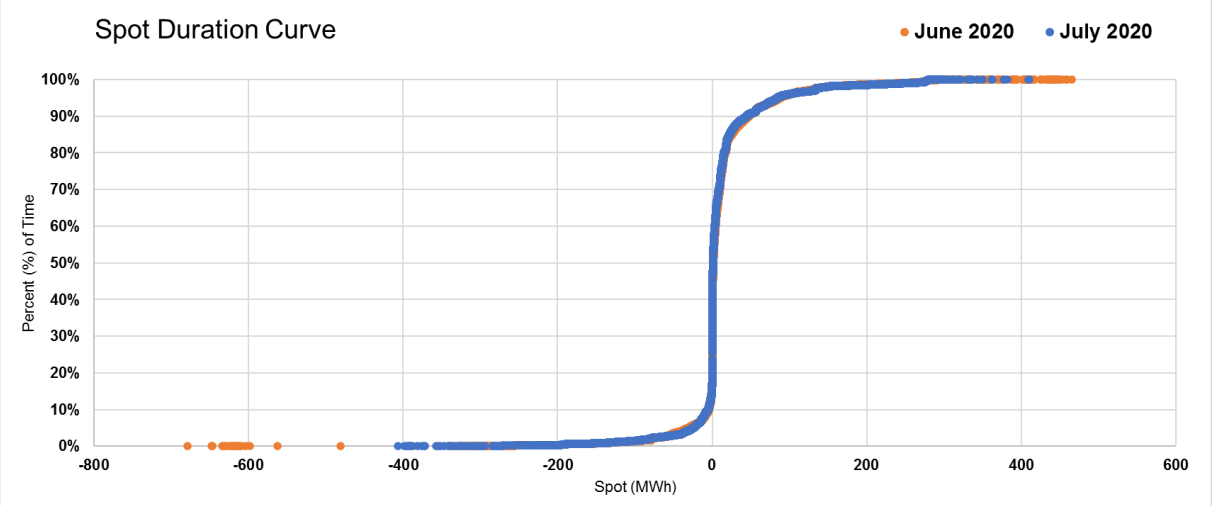
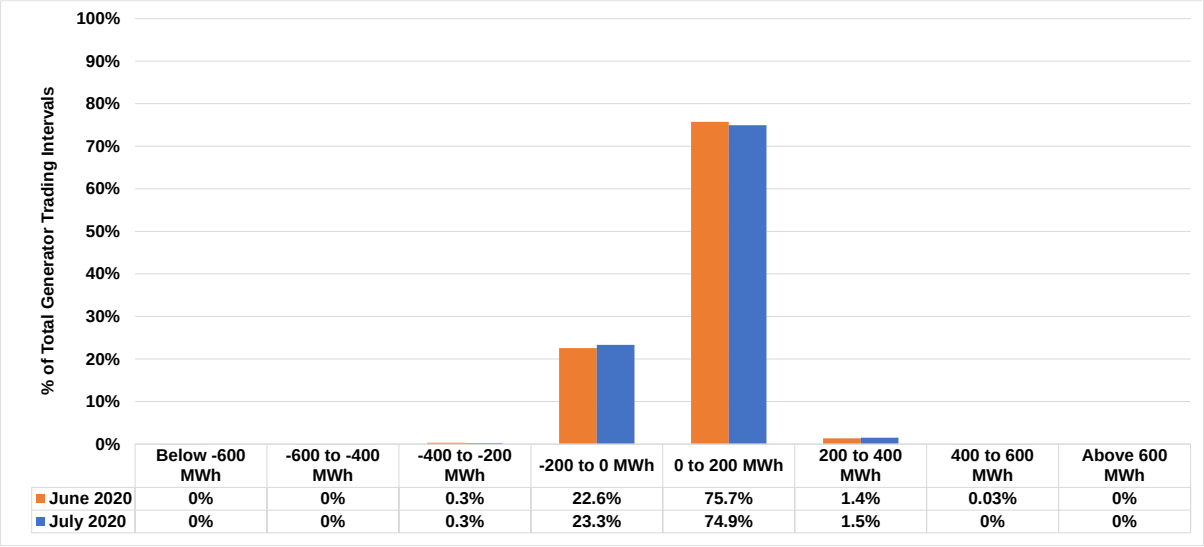


Figure 14. **Spot Duration Curve, June and July 2020**

[5] 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

- Generator spot quantities for June and July 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 July, slightly lower than last month's 77 percent, was on the account of energy being sold in the market (positive MWh quantity). Last month's June 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.



	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
June 2020	0%	0%	0.3%	22.6%	75.7%	1.4%	0.03%	0%
July 2020	0%	0%	0.3%	23.3%	74.9%	1.5%	0%	0%

Figure 15. **Spot Frequency Distribution Table, June and July 2020**

b. Pivotal[6] Plants

- 41 intervals had a Residual Supply Index[7] (RSI) below the 100 percent mark from 86 intervals in June, indicating the less frequent presence of pivotal suppliers.
- Majority of these instances occurred during the latter part of July as the market experienced tighter supply margin with the increasing outage capacity.
- Additionally, during the community quarantine period, the market resulted in an RSI at an average of 111 percent indicating that supply was still generally abundant to satisfy the demand.

[6] 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.
[7] 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.

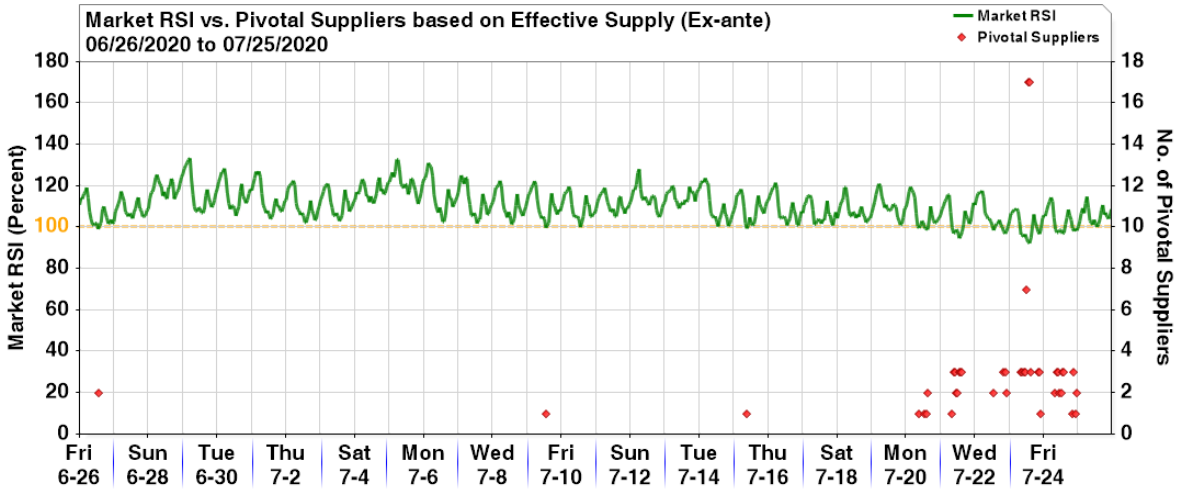


Figure 16. **Market RSI vs Pivotal Suppliers, July 2020**

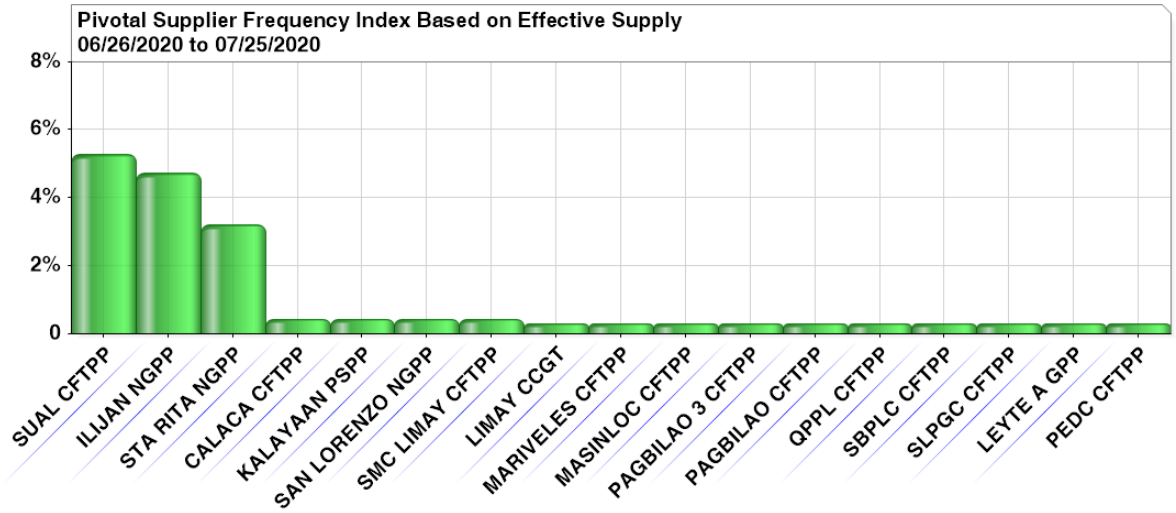


Figure 17. **Top Pivotal Plants, July 2020**

c. Total Trading Amount (TTA)[8] Share

- Semirara Mining and Power Corporation (SMPC), and Aboitiz Power Corporation (AP) held the highest TTA share of top sellers in the market with approximately 35.5 percent and 14.5 percent, respectively, or a cumulative 50 percent of the entire TTA of generators selling in the market during the billing month. Power Sector Assets and Liabilities Management (PSALM) declined one spot at 13.3 percent share.

[8] 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 37.4 percent and 17.2 percent, respectively, with AP surpassing PSALM's 12.6 percent share.
- First Gen Corporation (FGC) retained its 4th spot in terms of TTA share and spot share in the market this month.
- Millennium Energy, Inc (MEI) and Gregorio Araneta, Inc. (GAI) experienced a decline in rank based on TTA share with the increase in TTA share of Vivant Energy Corporation (VEC) from last month
- Ayala Corporation (AC) was off the list as compared to last month as a result of posting a low TTA this month.
- Meanwhile, San Miguel Corporation (SMC), despite being a net buyer as well, incurred a positive TTA.

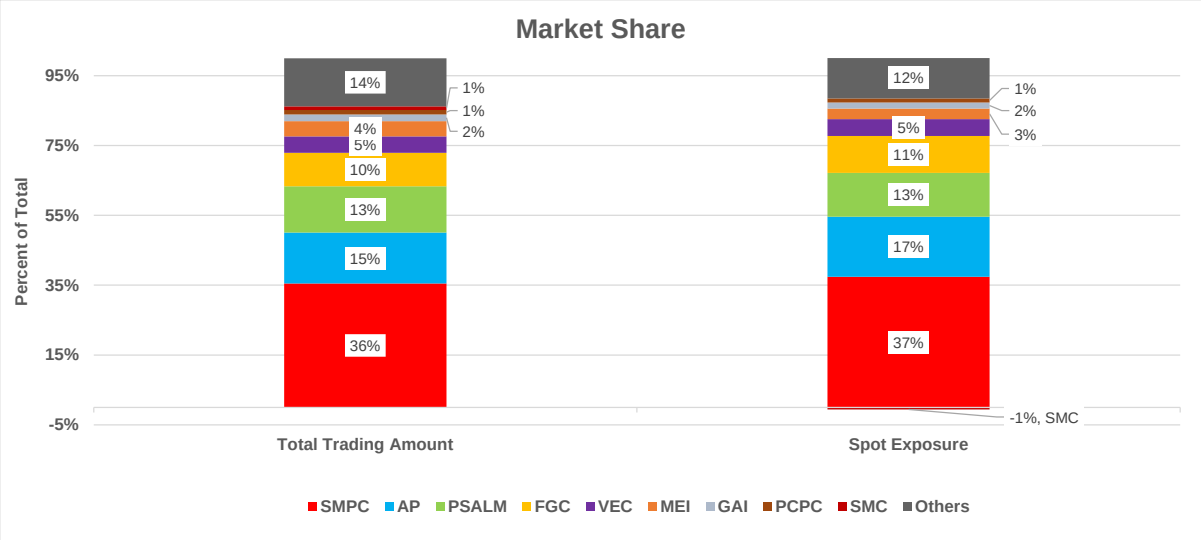


Figure 18. **Total Trading Amount and Spot Exposure Share, July 2020**

- In the course of validation of the June billing month data, it was observed that the data between two biomass plants in Luzon were interchanged, affecting the calculation of the settlement quantities of both participants.
- Per the Market Operator (MO), both plants were under the same market participant group which had no severe implication as regards the wrongly mapped data. Further, the issue was thoroughly checked and corrected by the MO in the same billing month.

Annex A. List of Major Plant Outages

Region	Plant Type	Plant/ Unit Name	Capacity (MW)	Date Out	Date In	Duration (Days)	Outage Type	Remarks
LUZON	GEO	Makban 6	55	04/11/2013 22:44			Deactivated Shutdown	Conducted gas compressor test
VISAYAS	GEO	PGPP2 Unit 4	20	06/27/2014 6:07			Forced Outage	Steam being utilized by Nasulo plant
LUZON	GEO	Makban 5	55	02/08/2019 16:08			Forced Outage	Low Steam Supply. Divert Steam Supply to unit 3
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
LUZON	GEO	Tiwi 1	59	10/31/2019 23:54	05/27/2020 0:01	208.00	Forced Outage	Low steam supply. Divert steam supply to unit 2
VISAYAS	COAL	TPC Sangi 1	60	12/17/2019 6:05			Forced Outage	Generator differential trip
VISAYAS	GEO	Mahanagdong A1	5	02/04/2020 0:11			Forced Outage	Annual PMS of 230kV bus bar.
VISAYAS	GEO	Upper Mahiao 2	32	02/14/2020 16:04			Forced Outage	cut-in to the system
LUZON	COAL	SLPGC 2	150	02/19/2020 23:57	06/11/2020 4:23	112.18	Planned Outage	Maintenance outage.
LUZON	COAL	SMC 3	150	03/10/2020 23:35	05/26/2020 16:56	76.72	Planned Outage	Maintenance outage.
VISAYAS	GEO	Upper Mahiao 3	32	03/24/2020 0:11			Forced Outage	Reserved shutdown
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
VISAYAS	COAL	CEDC 2	82	05/11/2020 0:34	05/30/2020 19:34	19.79	Planned Outage	APMS
VISAYAS	OIL	Bohol 3	4.2	05/14/2020 14:56	06/10/2020 17:37	27.11	Forced Outage	Auto-tripped due to excitation failure
LUZON	HYD	Angat M 2	50	05/16/2020 0:01	05/29/2020 0:01	13.00	Planned Outage	Maintenance Outage until 30 May 2020
LUZON	COAL	Pagbilao 2	382	05/16/2020 5:43	05/26/2020 22:44	10.71	Forced Outage	Tripped at 120MW load. System frequency at 59.32hz.
LUZON	COAL	Calaca 2	300	05/18/2020 2:20	05/29/2020 13:21	11.46	Forced Outage	Tripped at 150MW load. System Frequency at 59.46hz.
VISAYAS	OIL	Bohol 4	4	05/20/2020 14:16	06/01/2020 15:04	12.03	Forced Outage	Generator fault.
LUZON	COAL	Pagbilao 1	382	05/20/2020 18:44	06/03/2020 3:01	13.35	Forced Outage	Due to loss of field excitation (AVR problem)
LUZON	COAL	SBPL	455	05/23/2020 0:29	06/05/2020 7:10	13.28	Maintenance Outage	Maintenance Outage until 03 June 2020
LUZON	HYD	Magat 2	97	05/23/2020 7:31	05/26/2020 10:50	3.14	Forced Outage	Oil leak on servo motor.
LUZON	COAL	SMC 1	150	05/25/2020 2:19	06/05/2020 21:14	11.79	Forced Outage	Emergency shutdown to rectify hotspot at Lamao Substation and repair of coal feeders.
LUZON	GEO	MGPP 2	12	05/25/2020 15:46	06/04/2020 1:25	9.40	Forced Outage	Emergency shutdown to conduct trouble-shooting of main control valve.
LUZON	GEO	Tiwi 1	60	05/27/2020 0:02			Forced Outage	Low steam supply. Divert steam supply to unit 2
LUZON	GEO	Tiwi 2	60	05/27/2020 6:59	05/27/2020 7:14	0.01	Forced Outage	Mechanical extraction system trouble
LUZON	NATG	Sta. Rita 3	265.5	05/28/2020 8:52	05/29/2020 2:54	0.75	Forced Outage	Tripped due to trouble at power supply of steam turbine control cabinet
LUZON	HYD	Binga 2	35	05/28/2020 10:01	05/28/2020 18:30	0.35	Forced Outage	Emergency shutdown due to leak at cooling system
LUZON	GEO	Makban 7	20	05/28/2020 23:26	06/02/2020 20:11	4.86	Forced Outage	Affected by the shutdown of Makban C-D Tie Line
VISAYAS	GEO	Upper Mahiao 4	32	05/29/2020 0:01			Forced Outage	Loss of power Servo Position Controller
LUZON	GEO	Makban 8	20	05/29/2020 0:30	05/29/2020 7:21	0.29	Forced Outage	On houseload operation. Affected by the shutdown of Makban C-D Tie Line
LUZON	COAL	Calaca 2	300	05/30/2020 5:34	05/30/2020 7:46	0.09	Forced Outage	Tripped at 270MW load.
VISAYAS	GEO	Leyte 3	40.2	05/30/2020 10:29	05/31/2020 1:27	0.62	Forced Outage	Emergency repair of steam scrubber inlet pipeline leak.
LUZON	GEO	Makban 2	63	05/30/2020 15:49	05/30/2020 16:18	0.02	Forced Outage	Tripped at 50MW load.
LUZON	COAL	Calaca 2	300	05/30/2020 16:16	06/04/2020 3:28	4.47	Forced Outage	Unit Master Fuel Protection actuation. Tripped at 256MW load. System Frequency at 59.
VISAYAS	GEO	Leyte 3	40.2	05/31/2020 1:27			Forced Outage	completed repair of steam scrubber inlet pipeline leak.
LUZON	NATG	Sta. Rita 1	257.3	05/31/2020 5:49	05/31/2020 20:38	0.62	Maintenance Outage	Rectification of main lube oil pump
VISAYAS	COAL	TPC Sangi 2	85	06/01/2020 0:50	06/24/2020 11:20	23.44	Planned Outage	UNIT CUT-OUT FROM THE SYSTEM. ANNUAL PMS
LUZON	NATG	San Gabriel	420	06/02/2020 21:44	06/03/2020 10:06	0.52	Forced Outage	Affected by the SPEX Malampaya Gas Supply restriction
LUZON	COAL	GN Power 1	316	06/03/2020 15:38	06/04/2020 7:58	0.68	Forced Outage	Master fuel trip actuated
LUZON	COAL	Pagbilao 1	382	06/03/2020 23:13	06/06/2020 8:52	2.40	Forced Outage	AVR problem
LUZON	COAL	Pagbilao 2	382	06/04/2020 2:38	06/06/2020 22:51	2.84	Forced Outage	Boiler tube leak
LUZON	COAL	Masinloc 2	344	06/04/2020 9:45	06/05/2020 4:05	0.76	Forced Outage	Aux. power supply problem (initial information)
LUZON	NATG	Sta. Rita 1	257.3	06/04/2020 17:20	06/04/2020 18:45	0.06	Forced Outage	Tripped while on-going fuel changeover from Natural Gas to Oil
LUZON	GEO	Bacman 3	20	06/04/2020 18:52	06/10/2020 19:42	6.03	Forced Outage	Control valve trouble.
VISAYAS	OIL	TPC Carmen 4	10	06/05/2020 0:17	06/08/2020 10:50	3.44	Forced Outage	CUT-OUT
LUZON	COAL	Masinloc 1	315	06/05/2020 0:49	06/06/2020 4:05	1.14	Forced Outage	Tripped due to unit auxiliary transformer trouble.
VISAYAS	OIL	TPC Carmen 2	10	06/06/2020 18:56	06/07/2020 22:41	1.16	Forced Outage	Main bearing problem
LUZON	COAL	Masinloc 2	344	06/06/2020 20:32	06/07/2020 9:30	0.54	Forced Outage	Condenser vacuum trouble.
LUZON	COAL	Pagbilao 2	382	06/06/2020 23:11	06/07/2020 0:43	0.06	Forced Outage	Tripped with 19MW load.
LUZON	GEO	Makban 10	20	06/07/2020 7:38	06/07/2020 12:46	0.21	Maintenance Outage	To facilitate hotspot correction at 69kV Phase A CIT of Makban Plant E
LUZON	GEO	Makban 9	20	06/07/2020 7:38	06/07/2020 12:46	0.21	Maintenance Outage	To facilitate hotspot correction at 69kV Phase A CIT of Makban Plant E
VISAYAS	GEO	PGPP1 Unit 3	37.5	06/07/2020 8:07	06/07/2020 16:49	0.36	Maintenance Outage	Offline due to rectification of cooling tower fan A high vibration
VISAYAS	COAL	THVI 2	169	06/07/2020 15:40	06/09/2020 23:45	2.34	Forced Outage	Blower problem
LUZON	NATG	San Lorenzo 1	264.8	06/07/2020 18:11	06/08/2020 2:14	0.34	Forced Outage	Tripped due to condenser vacuum trouble
LUZON	NATG	San Lorenzo 1	264.8	06/08/2020 19:29	06/09/2020 22:25	1.12	Forced Outage	Condensing system trouble
VISAYAS	GEO	PGPP2 Unit 3	20	06/09/2020 0:06	06/09/2020 4:22	0.18	Planned Outage	Offline due to scheduled maintenance
LUZON	NATG	San Lorenzo 1	264.8	06/09/2020 22:26	06/10/2020 0:09	0.07	Forced Outage	Cooling system problem
VISAYAS	COAL	THVI 2	169	06/10/2020 11:04	06/20/2020 16:27	10.22	Forced Outage	TURBINE VIBRATION
LUZON	NATG	San Lorenzo 1	264.8	06/10/2020 17:35			Maintenance Outage	Maintenance outage(GOP)
LUZON	NATG	San Lorenzo 2	261.8	06/11/2020 1:29			Maintenance Outage	Maintenance outage (GOP).
LUZON	COAL	SMC 2	150	06/11/2020 5:10	06/11/2020 12:33	0.31	Forced Outage	Secondary air fan high vibration.
LUZON	COAL	SLPGC 2	150	06/11/2020 8:31	06/11/2020 18:11	0.40	Maintenance Outage	On-going maintenance test.
LUZON	HYD	Masiway	12	06/13/2020 22:36	06/14/2020 0:22	0.07	Forced Outage	Affected by the tripping of Cabanatuan-Fatima 69KV line.
LUZON	GEO	Bacman 3	20	06/14/2020 6:08	06/15/2020 14:06	1.33	Forced Outage	Low low lube oil pressure
LUZON	COAL	SMC 4	150	06/14/2020 7:17	06/14/2020 15:32	0.34	Forced Outage	To facilitate hotspot correction
VISAYAS	GEO	PGPP1 Unit 2	37.5	06/14/2020 8:06	06/14/2020 16:30	0.35	Maintenance Outage	Offline due to scheduled corrective maintenance
LUZON	COAL	Calaca 2	300	06/14/2020 20:54	06/15/2020 2:44	0.24	Forced Outage	Circulating Water Pump (CWP) trouble
LUZON	OIL	Limay 1	60	06/14/2020 22:22	06/15/2020 12:52	0.60	Forced Outage	Tripped due to high temperature of turbine exhaust
LUZON	OIL	Limay 3	60	06/15/2020 3:03	06/15/2020 6:29	0.14	Forced Outage	rotor seal trouble
LUZON	COAL	Calaca 2	300	06/15/2020 8:33	06/15/2020 9:18	0.03	Forced Outage	Uncontrollable maim steam temperature
LUZON	HYD	Kalayaan 3	180	06/16/2020 0:01	06/20/2020 23:35	4.98	Planned Outage	Maintenance Outage
VISAYAS	COAL	PEDC 1	83.7	06/16/2020 4:12	06/18/2020 19:30	2.64	Forced Outage	Auto tripped. Cause under assessment
LUZON	OIL	Limay 1	60	06/16/2020 10:05	06/16/2020 18:23	0.35	Forced Outage	
LUZON	HYD	Kalayaan 1	180	06/17/2020 8:49			Forced Outage	Declared unavailable due to generator radiator water leak
VISAYAS	COAL	PEDC 1	83.7	06/18/2020 20:38	06/18/2020 22:39	0.08	Forced Outage	feeder trouble
LUZON	COAL	Masinloc 1	315	06/19/2020 9:51	06/19/2020 16:23	0.27	Forced Outage	Tripped due to Auto Plant Control (APC Turbine-Generator Control)) trouble.
VISAYAS	OIL	TPC Carmen 4	10	06/20/2020 21:41	06/23/2020 0:26	2.11	Forced Outage	HIGH INTENSITY OIL MIST
LUZON	COAL	Sual 1	647	06/20/2020 22:33	06/22/2020 3:44	1.22	Forced Outage	Boiler circulating pump trouble.
LUZON	COAL	Pagbilao 1	382	06/21/2020 0:31			Planned Outage	Maintenance outage until 7.20.2020
LUZON	GEO	Makban 10	20	06/21/2020 3:14	06/21/2020 8:59	0.24	Forced Outage	UPS problem.
LUZON	HYD	Kalayaan 4	180	06/23/2020 0:01			Planned Outage	Maintenance Outage until 02 July 2020
VISAYAS	COAL	CEDC 2	82	06/24/2020 4:43			Forced Outage	SUSPECTED BOILER TUBE LEAK
LUZON	HYD	Binga 4	35	06/24/2020 11:53	06/24/2020 16:13	0.18	Forced Outage	Govenor system problem
LUZON	OIL	Limay 1	60	06/25/2020 23:52			Forced Outage	Fuel System Trouble