Monthly Market Assessment Report

26 September 2020 to 25 October 2020

NOVEMBER 2020

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

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Monthly Market Assessment Report for October 2020 Billing Month

1. ASSESSMENT OF THE MARKET

- About 97 percent of the total market price outcomes in October 2020 was a result of normal pricing condition, higher than last month's monthly percent share of normal intervals at 90 percent in Luzon. Also, an increment was also noted in the Visayas region from 90% to 93%.
- For the first time this year, there was no Price Substitution Methodology (PSM) application due to congestion.
- Prices with pricing error occurred around 3 percent of the time for Luzon and 8 percent for Visayas 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 this month.

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

Pricing Condition	No. of Intervals			
	Luzon	% of Time	Visayas	% of Time
Normal	699	97.1%	666	92.5%
Congestion	0	0.0%	0	0.0%
Pricing Error Notice	21	2.9%	54	7.5%
Administered Price	0	0%	0	0%
Secondary Cap	0	0%	0	0%
Total	**720**	**100%**	**720**	**100%**

- For intervals under normal condition, the market had a volatile movement of hourly prices at the onset of the month wherein higher electricity demand resulted to relatively high prices before maintaining low stable prices for the rest of the trading intervals due to sufficient supply and declining demand.
- In addition to this month's supply sufficiency, the average effective supply level was a slight uptick from last month driven by the recorded decline in total plant outage level and capacities not offered. At the same time, the system demand dipped and concluded with a significantly lower average than last month as a result of cooler recorded temperatures.

Notable Highlight:

1. *Unusual level of demand*
   - *Observance of low level of demand due to imposed community quarantine and weather conditions during the rainy season*
2. *Non-existence of intervals imposed with Price Substitution Methodology (PSM)*
   - *Both Luzon and Visayas regions had no intervals with PSM with a recorded high number of normally priced intervals*

2. MARKET OUTCOME

2.1 Price[1]

2.1.1 Price and Supply Margin

- On 19 August, the GCQ was reinstated, coming from MECQ declaration from 4 to 18 August, and was continuously imposed throughout the October billing month. While quarantine protocols continue to be implemented, there were no episodes of price spikes this period as compared last month, leading to a downtrend in monthly average price.
- Meanwhile, this year's October billing month recorded the highest monthly average supply margin at 2,313 MW which resulted in the lowest monthly average market price at PHP2,034/MWh for the same month in the previous 5 years.
- Since the implementation of the community quarantine in March 2020, most months had an unusually high level of average monthly supply margin which resulted to low WESM prices.
- The significant decline in demand of electricity, following the community quarantine measures which significantly soften economic activities, drove the resulting low prices this October.
- This observation was contrary to the past years historical trend where around the same season higher demand and lower supply margin were noted.

[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.

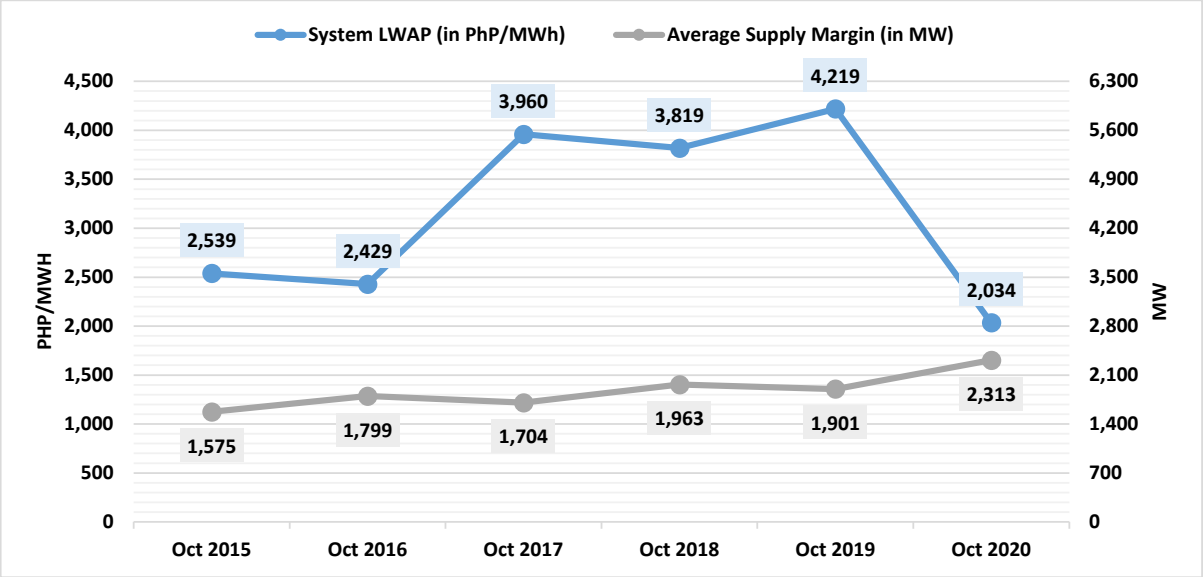


Figure 1. System LWAP and Supply Margin, October 2015-2020

- Monthly load weighted average price (LWAP) dropped by 44 percent from PHP3,657/MWh in September to PHP2,034/MWh in October.
  - Monthly average peak prices declined by 49 percent from PHP4,529/MWh to PHP2,311/MWh.
  - Monthly average off-peak prices fell by 37 percent from PHP2,769 to PHP1,750/MWh.
- The average supply margin widened by 24 percent from 1,863 MW in September to 2,313 MW in October.

Table 2. System LWAP and Supply Margin, September and October 2015-2020

Year	Month	Average Supply Margin	% Change in Average Supply Margin	System LWAP	% Change in System LWAP
2015	September	1,806	-13%	2,176	17%
	October	1,575		2,539	
2016	September	1,578	14%	2,764	-12%
	October	1,799		2,429	
2017	September	1,709	0%	3,898	2%
	October	1,704		3,960	
2018	September	2,126	-8%	2,966	29%
	October	1,963		3,819	
2019	September	2,739	-31%	2,139	97%
	October	1,901		4,219	
2020	**September**	**1,863**	**24%**	**3,657**	**-44%**
	October	**2,313**		**2,034**	

- Hourly resolution of LWAP saw the highest level at PHP16,854/MWh on 28 September 2020 1400H as a result of the spike in demand plus reserve schedule at 13,451 MW despite the above-average level of effective supply at 14,359 MW for the hour. This interval recorded one of the lowest supply margins for October 2020 at 908 MW.
- About 97 percent of the time, the hourly system LWAP was below the PHP4,000/MWh level.
- Prices during the weekdays averaged at PHP2,153/MWh while during weekends it was at PHP1,777/MWh.
    - Weekday – Off-peak: PHP1,751/MWh; Peak: PHP2,438/MWh
    - Weekend – Off-peak: PHP1,747/MWh; Peak: PHP1,836/MWh
- The highest average price per interval was noted on 1400H at PHP3,602/MWh and the lowest was on 0700H at PHP1,409/MWh regardless of the day type (i.e. weekday or weekend).

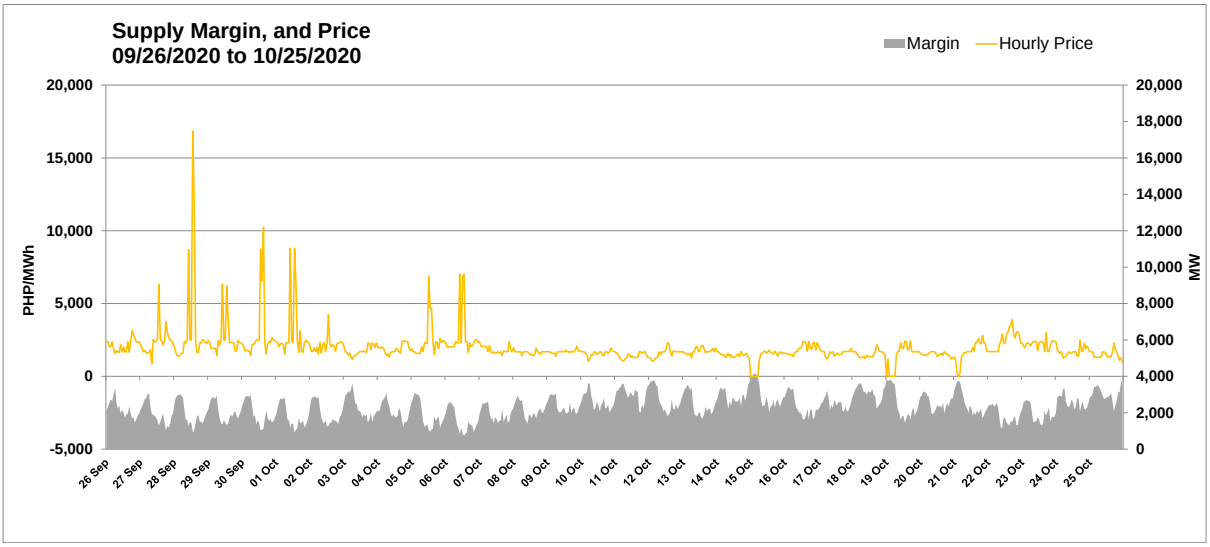


Figure 2. Hourly Supply Margin and Price, October 2020

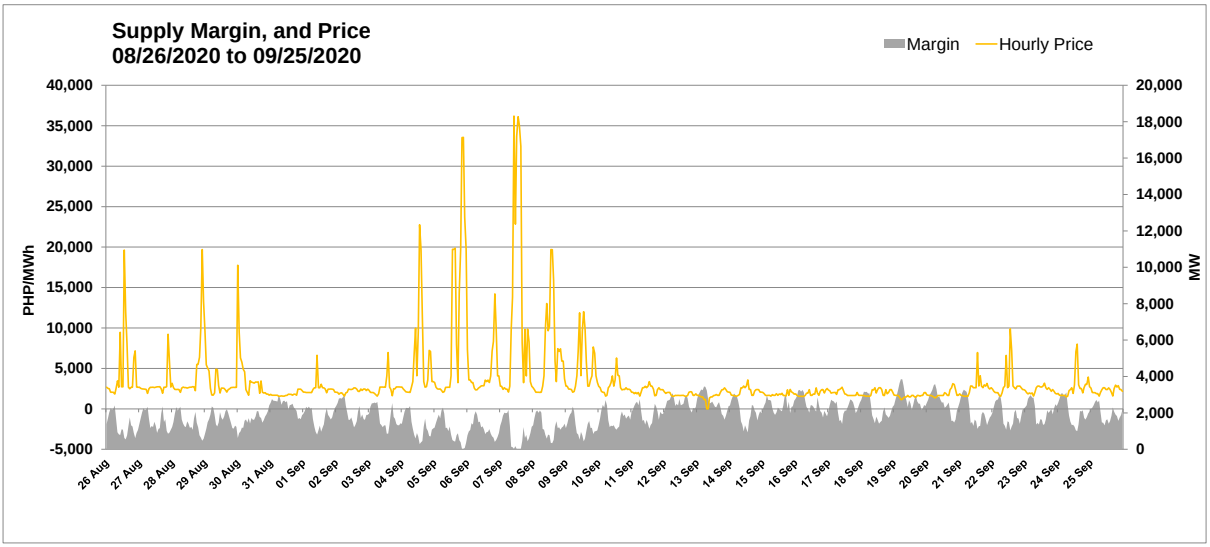


Figure 3. Hourly Supply Margin and Price, September 2020

2.1.2 Load Nodal Price Duration Curve[2]

- For peak[3] hours, about 90 percent of the load nodal prices fell below PHP2,549/MWh in October and PHP6,864/MWh in September while distribution of prices during the off-peak hours were seen below PHP2,371/MWh in October and PHP3,394/MWh in September in about the same percentage of time.
- Maximum off-peak and peak load nodal price reached PHP11,317/MWh and PHP20,776/MWh in October, respectively.
- Bulk of the peak nodal prices, at around 95 percent, were seen ranging from PhP0/MWh to PhP5,000/MWh while for off-peak nodal prices, this was at 99 percent at the same range.
- Based on the graph below, both the October 2020 peak and off-peak price curves are translated upward and to the left as compared with the September 2020 price curves, indicating lower nodal prices for the month for both hour types.
- Nodal prices reaching above PhP30,000/MWh were not evident during peak and off-peak intervals as opposed to last month.

[2] Load nodal prices under normal pricing condition are used.

[3] Peak and off-peak intervals differ between Luzon and Visayas regions.

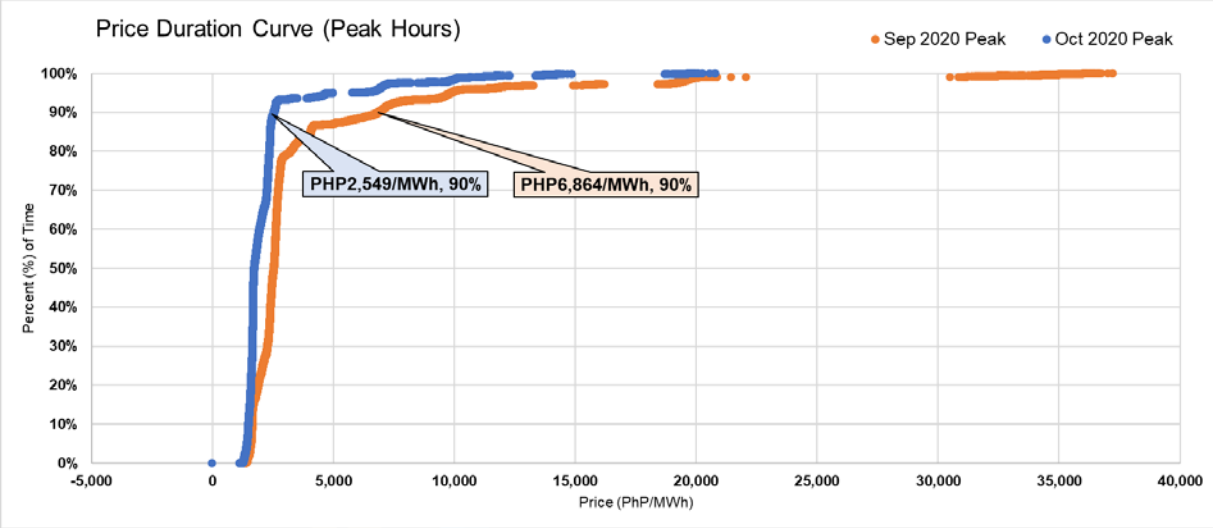


Figure 4. Load Nodal Price Duration Curve (Peak), September and October 2020

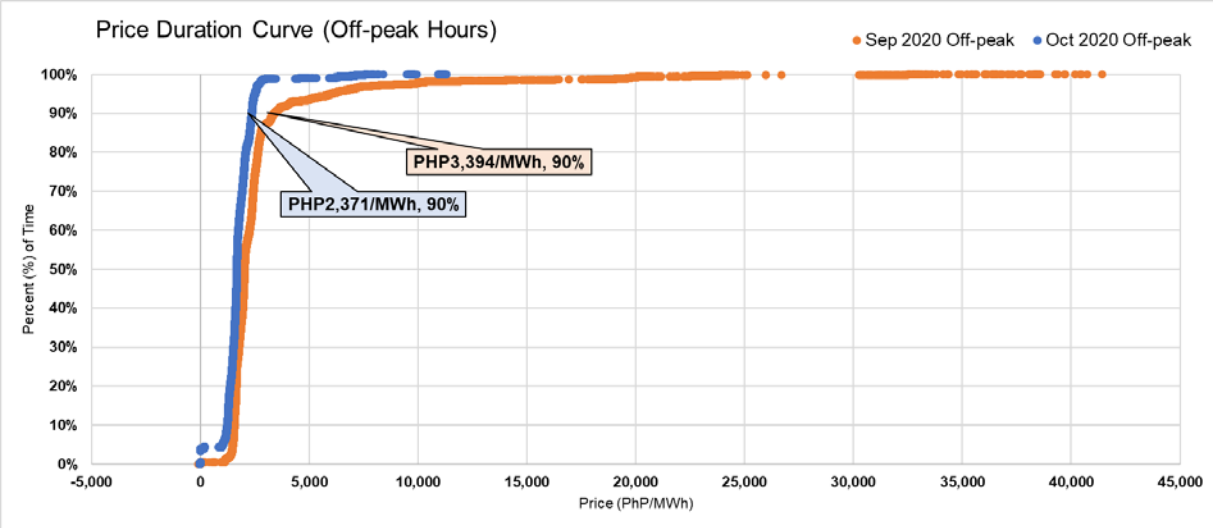


Figure 5. Load Nodal Price Duration Curve (Off-peak), September and October 2020

2.2 Supply

- A decrease of 1.5 MW in the WESM registered capacity was recorded this month from a total of 20,207.47 MW to 20,205.97 MW with the decline in maximum capacity of the Cagayan Biomass Energy Corporation biomass plant from 15 MW to 13.5 MW effective 02 October 2020.
- Available capacity[4] constituted an average of 14,479 MW or 72 percent of the total registered capacity.
- Capacity not offered comprised an average of 3,202 MW or 16 percent.
- Outage capacity accounted for an average of 2,525 MW or 12 percent.

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

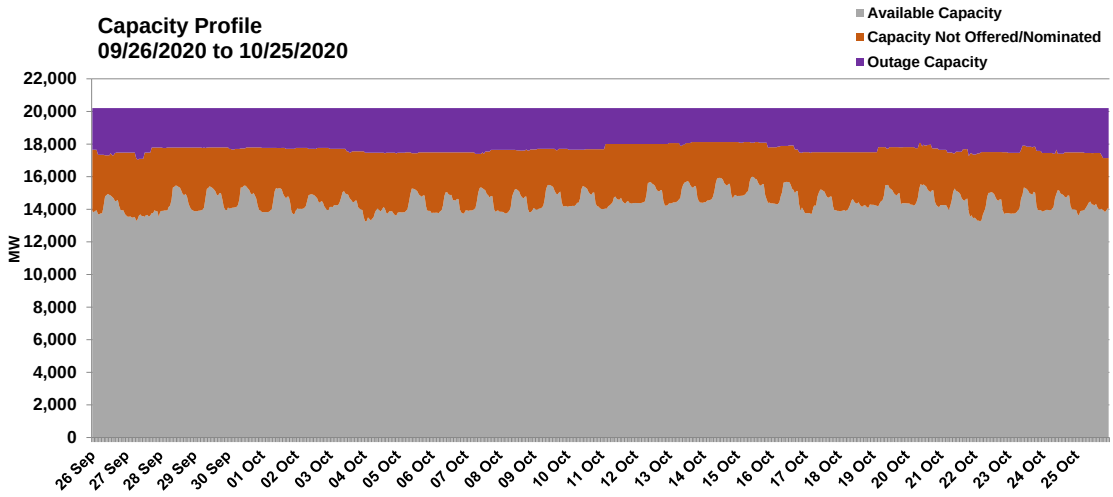


Figure 6. Capacity Profile, October 2020

2.2.1 Outage Capacity[5]

- Outage capacity fell by 4 percent from an average of 2,623 MW last month to an average of 2,525 MW this month.
- Planned outages comprised 527 MW on average or 20 percent of the total outages. Majority or about 71 percent was composed of forced outages averaging at 1,825 MW, and maintenance outages at 174 MW or 7 percent of the total outages. Meanwhile, deactivated shutdown accounted for only about 55 MW on average or 2 percent of the outages.
- There was a significant increase in average level of maintenance outages of several geothermal plants which formed the entire maintenance outages for the month.
- Total outage capacity for the month closed at 3,061 MW, higher than its opening level at 2,551 MW.
- Coal plants majorly contributed to the level of forced outages while natural gas plants and geothermal plants figured in the planned outages and deactivated shutdown, respectively.

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

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

Plant Type	Planned Outage (20%)	Forced Outage (71%)	Maintenance Outage (7%)	Deactivated Shutdown (2%)
Coal	30%	53%	0%	0%
Natural Gas	44%	24%	0%	0%
Geothermal	7%	6%	100%	100%
Hydro	0%	0%	0%	0%
Oil-based	19%	17%	0%	0%
TOTAL	**100%**	**100%**	**100%**	**100%**

- Planned outages had a further 9 percent decline from last month while averaging at 527 MW this month as influenced by the resumption in operations of the Masinloc CFTPP unit 1 (315 MW) on 11 October, which was on planned outage since 29 July 2020.
- Similarly, forced outages' monthly average level marginally fell by 2 percent from 1,856 MW to 1,825 MW.
- Percentage share of forced outages increased particularly towards the end of the month as evident from outages of several large coal plants.
- Maintenance outages were kept at a low level similar with last month despite an uptick towards the end of the month due to outages from geothermal plants.
- Total outages were almost consistently below 3,000 MW throughout the month with a 5-day dip on 11 to 15 October but ended with a level of outage capacity beyond the 3,000 MW level.

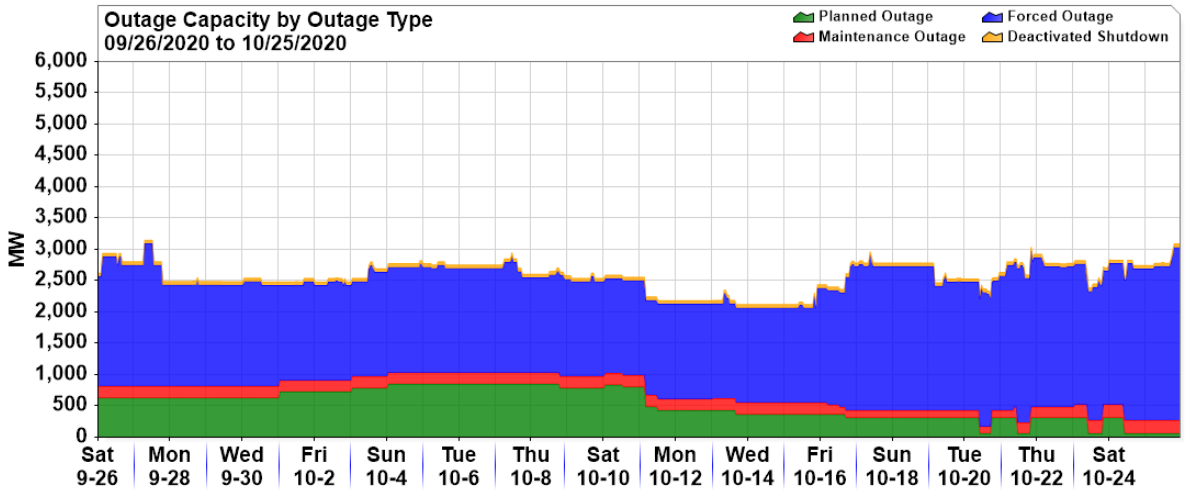


Figure 7. Outage Capacity by Outage Category, October 2020

Table 4. Outage Summary by Outage Category, September and October 2020

Outage Category	Oct 2020 (in MW)			Sep 2020 (in MW)		
	Max	Min	Average	Max	Min	Average
Planned	851	60	527	734	335	582
Maintenance	210	114	174	320	63	99
Forced	2,769	1,514	1,825	3,314	1,196	1,856
Deactivated Shutdown	55	55	55	55	55	55
TOTAL	**3,147**	**2,122**	**2,581**	**3,870**	**1,985**	**2,592**

- In terms of type of power plants, coal generators accounted for less than half of the outages at 44 percent from more than half at 53 percent last month. The decline in coal outage share was influenced by the increase in natural gas outage from 19 percent to 26 percent. Oil-based plants distantly followed with 16 percent share while geothermal plants were maintained at 13 percent. Meanwhile, hydro plants consistently came in last with 0.1 percent or with almost no recorded outage this month.
- The October billing month began with high coal outages from previous month's forced outages of Sual CFTPP unit 2 (647 MW), and TPC Sangi CFTPP unit 1 (60 MW) and the planned outage of Masinloc CFTPP unit 1 (315 MW) since July 2020.
- Natural gas plants also accounted the planned outage from Sta Rita NGPP unit 2 (256 MW) from 05 September to 20 October and its intermittent planned outage at the end of the month, leading to its forced outage of 24 October. This was on top of the sustained outage from San Gabriel NGPP (420 MW) since 05 September.
- Average outage level of hydro plants was further maintained at a low level attributing to the short outages from various hydro plants in the Luzon region.
- Majority of the average outage of oil-based plants at about 411 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 Navotas DPP units 1 and 2 (113 MW).
- Geothermal plants further kept a low average level of outages despite an uptick by the end of the month as a result of the outage of Bacman GPP units 1-3 (140 MW).

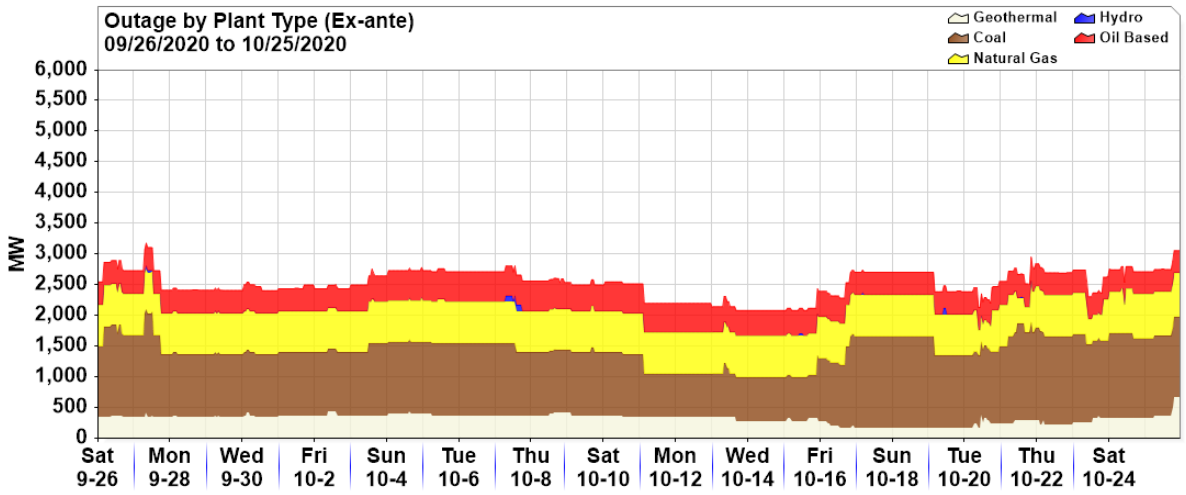


Figure 8. Outage Capacity by Plant Type, October 2020

Table 5. Outage Summary by Plant Type, September and October 2020

Plant Type	Oct 2020 (in MW)			Sep 2020 (in MW)		
	Max	Min	Average	Max	Min	Average
Coal	1,682	707	1,121	2,289	609	1,379
Natural Gas	726	420	669	940	0	497
Geothermal	676	172	323	452	294	352
Hydro	97	0	2	215	0	8
Oil-based	491	360	411	489	307	387
TOTAL	**3,182**	**2,083**	**2,525**	**3,870**	**2,009**	**2,623**

2.3 System Demand

- Monthly system demand dropped to an average of 9,788 MW with cooler recorded temperatures compared to last month as an effect of the La Niña season and the consequence of the on-going quarantine measure for the pandemic. This was a 4 percent reduction from last month's average of 10,214 MW.
- In comparison to the last month, the average off-peak demand at 9,020 MW this period saw a 5 percent decline as well as a 3 percent cut in the average peak demand recorded at 10,671 MW.
- Maximum system demand in October reached 12,301 MW for peak hours on 01 October, Thursday and 10,789 MW for off-peak hours on 27 September, Sunday.
- Minimum system demand in October was at 9,125 MW for peak hours and 7,312 MW for off-peak hours which transpired on 25 October, Sunday and 19 October, Monday, respectively.
- For the year 2020, the highest recorded hourly system demand was on 10 March 2020, 1400H at 13,162 MW, prior the enforcement of the community quarantine on 15 March 2020.
- Average temperatures on all weekdays and weekends were notably lower than last month.

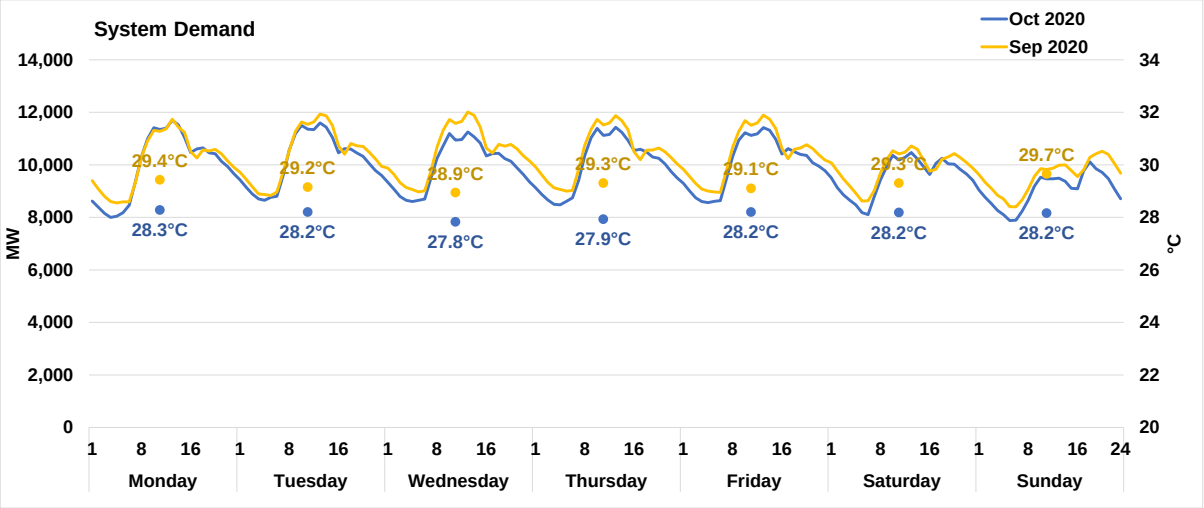


Figure 9. Average Hourly System Demand, September and October 2020

- The demand was down by 8 percent from 10,662 MW in October 2019 to 9,788 MW in October 2020, owing to the community quarantine.
- The downturn in average demand was attributable to the 7 percent decrease during off-peak hours from 9,739 MW to 9,020 MW. Likewise, the peak hours were observed to be lower than last year by 10 percent from 11,824 MW to 10,671 MW.
- The average temperatures per weekday in October this year were significantly lower than last year.

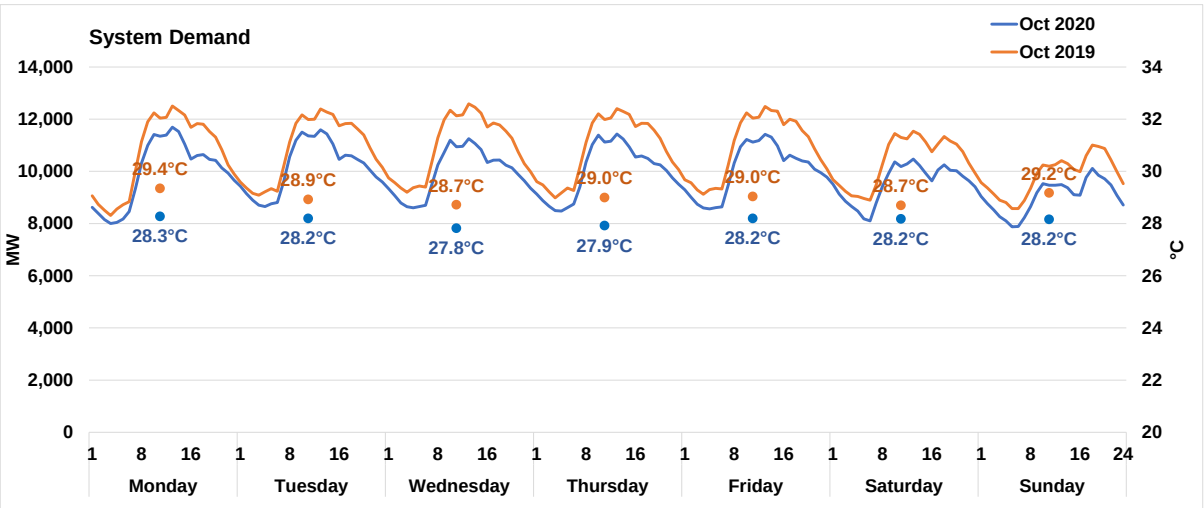


Figure 10. Average Hourly System Demand, October 2019 and 2020

- Year 2020 was exempt from the consistent annual pattern of increasing demand every October, which deviant trend was primarily because of the community quarantine period.
- The highest hourly system demand was still on 21 June 2019, 1400H at 13,378 MW.

- Similar with previous billing months under the community quarantine where this year's average level of demand was lower than their previous 1 to 2 years of average demand, the October billing month was no different in pattern.

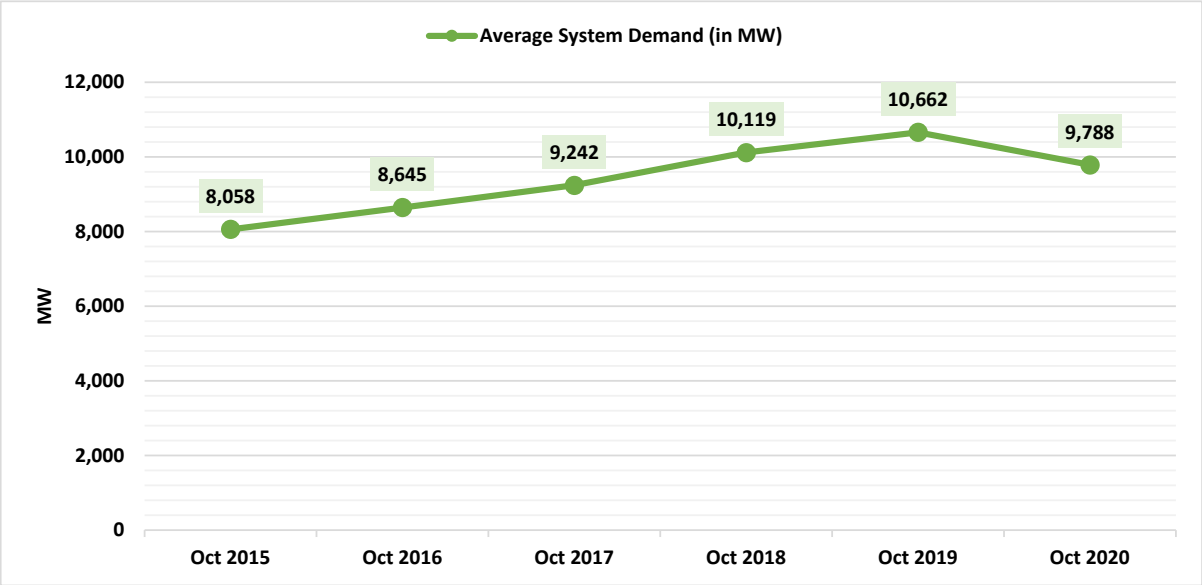


Figure 11. Average System Demand, October 2015-2020

3. SPOT TRANSACTIONS

3.1 Spot Exposure

3.1.1 Load

- Spot quantities[6] of load participants in September stood at 13.6 percent of the total metered quantities, lower than last month's 16.3 percent spot exposure, which signaled that consumers had less reliance on the market in sourcing their energy needs despite lower prices this month.
- Most of the load quantities at around 85.0 percent of their total consumption, an increase from last month's 81.9 percent, were still transacted outside the spot market and were contracted with generators.

[6] 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.

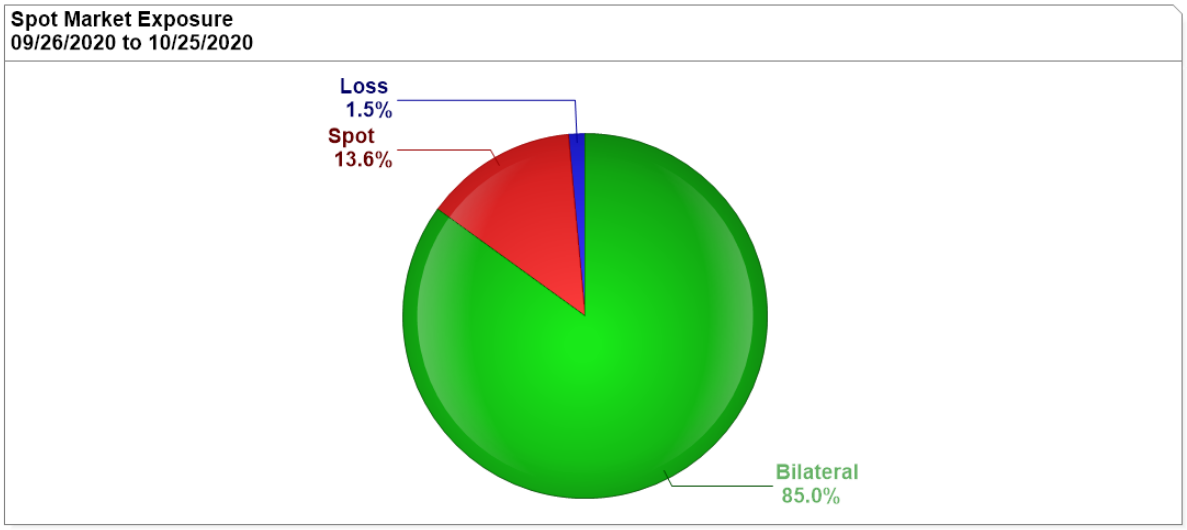


Figure 12. Spot Market Exposure, October 2020

3.1.2 Generator

- With the decline in total generated energy and the consistent level of BCQs that should be served this month, average hourly spot exposure of generators resulted to a significant drop in percentage share in all hours.
- Spot exposure in off-peak hours averaged at 17 percent while it was 13 percent during peak hours. Both exposures in off-peak and peak hours were lower than last month's 20 percent and 16 percent, respectively.
- Higher spot percentage were observed during the morning off-peak hours than other intervals, where generally, lower spot prices were evident.

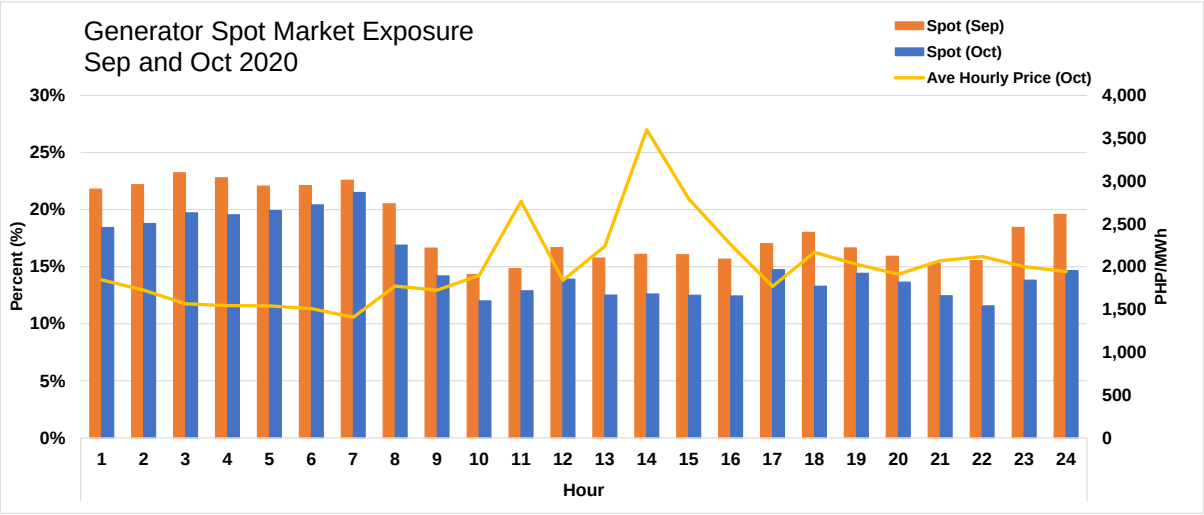


Figure 13. Hourly Generator Spot Market Exposure, September and October 2020

- Despite the generally lower spot exposure from generators and an overall lower market price this month, the high spot exposures were evident during days with high prices on the onset of the month.
- With this, participants were more exposed in high prices when buying in the market for the first few days of the period.

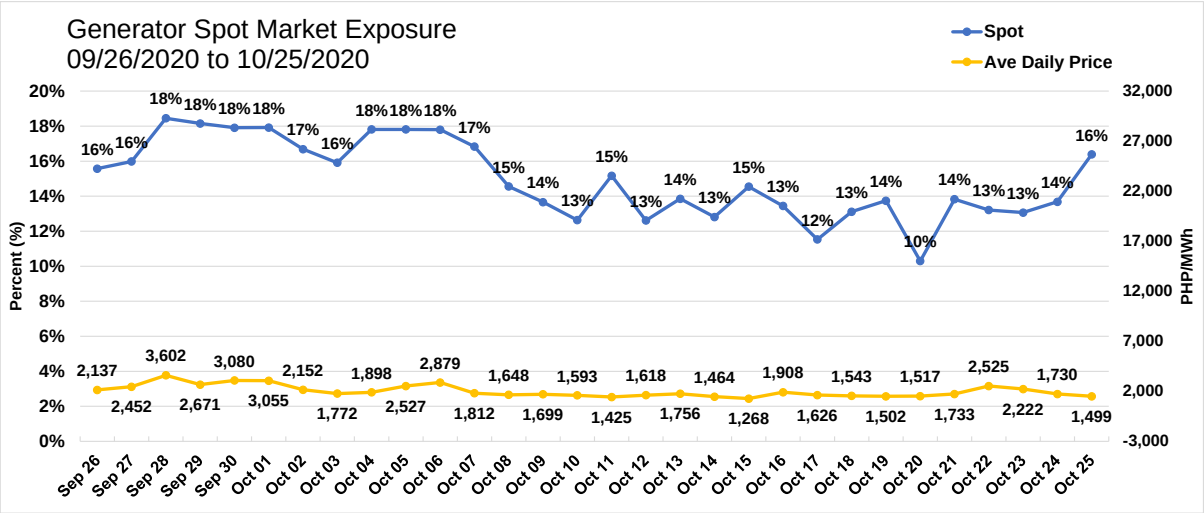


Figure 14. Daily Generator Spot Market Exposure, October 2020

- Based on the spot quantity duration curve[7] of October 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 412 MWh and -486 MWh, respectively.
- Additionally, all generator spot quantities did not exceed 300 MWh and 500 MWh for quantities sold and bought in the market per interval, respectively.

[7] 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.

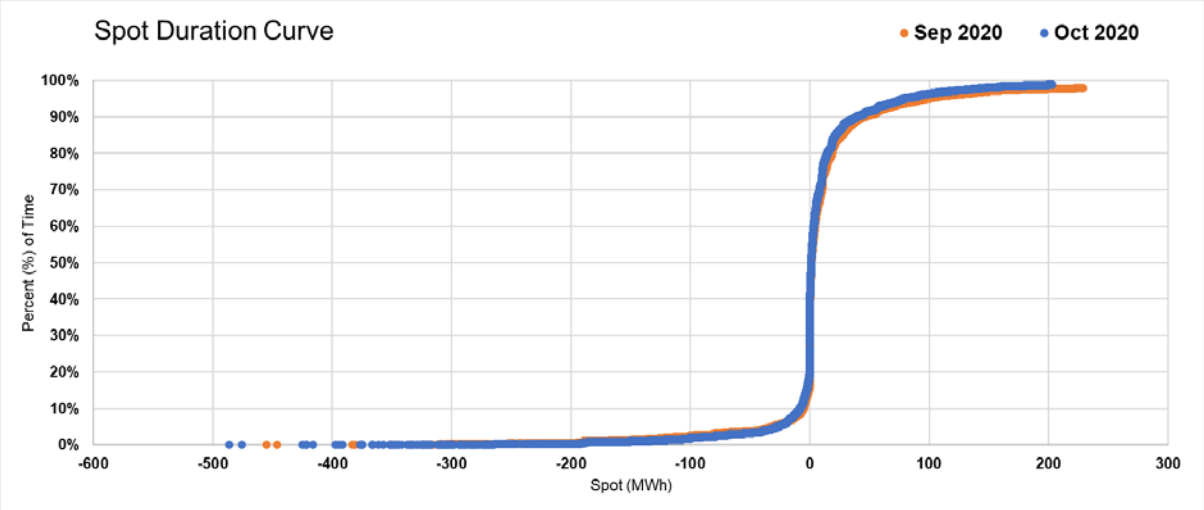
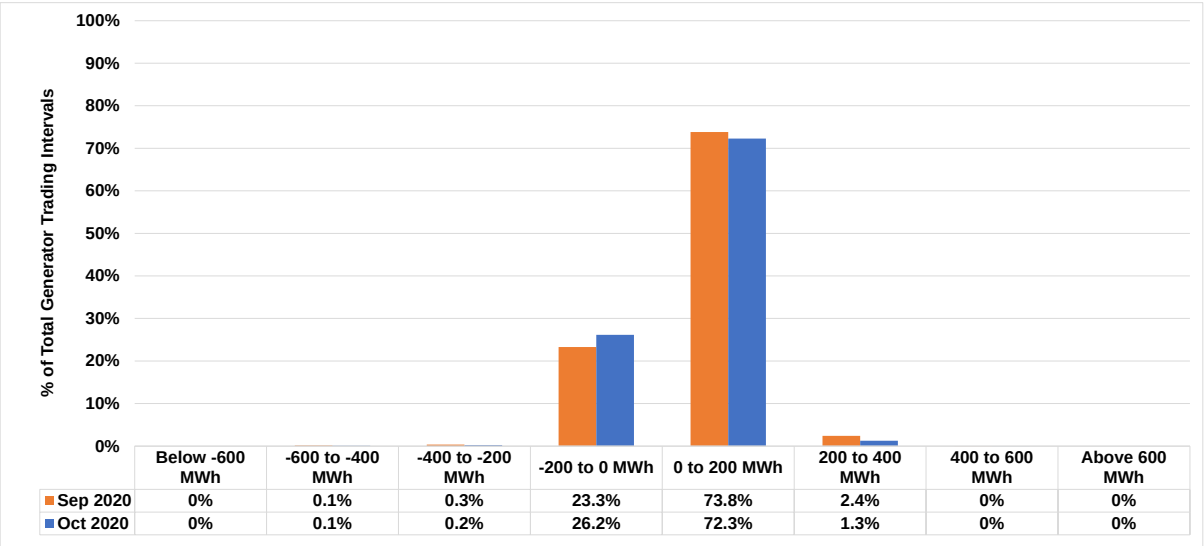


Figure 15. Spot Duration Curve, September and October 2020

- Generator spot quantities for September and October billing months were still much more concentrated on the -200 MWh to 200 MWh range while noting an increase in the -200 MWh to 0 MWh range or quantities bought in the market this month.
- About 74 percent of the total generator spot transactions in October, lower than last month's 76 percent, was on the account of energy being sold in the market (positive MWh quantity). Last month's September 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
Sep 2020	0%	0.1%	0.3%	23.3%	73.8%	2.4%	0%	0%
Oct 2020	0%	0.1%	0.2%	26.2%	72.3%	1.3%	0%	0%

Figure 16. Spot Frequency Distribution Table, September and October 2020

3.2 Pivotal[8] Plants

- Out of the 720 intervals in October 2020 billing month, only 26 intervals had a Residual Supply Index[9] (RSI) below the 100 percent mark from 147 intervals in September, indicating the less frequent presence of pivotal suppliers.
- Majority of these instances occurred during the onset of the month where the market experienced tighter supply margin with the higher demand relative to other days of October.
- The market resulted in an average RSI of 111 percent indicating that supply was still generally abundant to satisfy the demand.
- Intervals with RSI below 100 percent had an LWAP of PHP5,712/MWh from last month's PHP8,696/MWh while those with RSI above 100 resulted in a lower LWAP of PHP1,869/MWh from last month's PHP2,262/MWh.
- Ilijan NGPP, Pagbilao CFTPP, and Sta Rita NGPP joined the list of pivotal suppliers this billing month, taking off Calaca CFTPP, San Lorenzo NGPP, SMC Limay CFTPP, Kalayaan PSPP, Mariveles CFTPP, QPPL CFTPP, and Sual CFTPP from previous month's list.
- During the October billing month, the market resulted in an RSI ranging from 96 to 134 percent with the presence of higher RSIs during the middle of October.

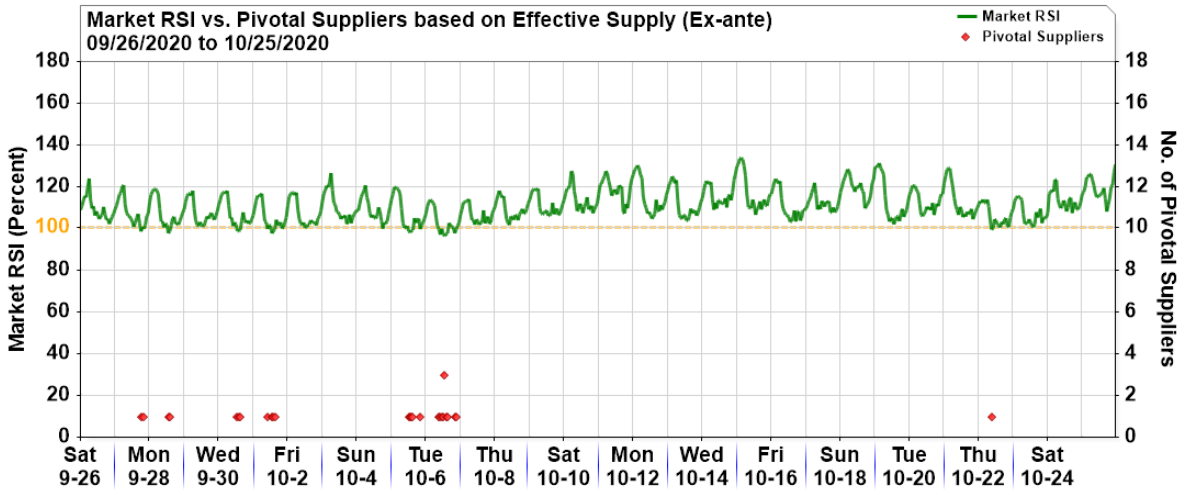


Figure 17. Market RSI vs Pivotal Suppliers, October 2020

[8] 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.

[9] 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.

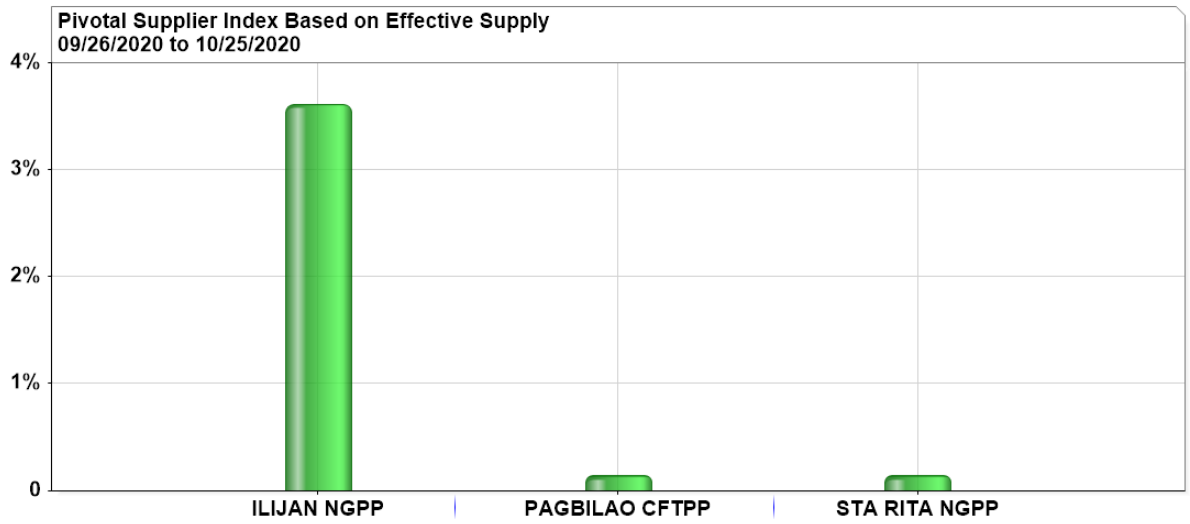


Figure 18. Top Pivotal Plants, October 2020

3.3 Total Trading Amount (TTA)[10] Share

- Semirara Mining and Power Corporation (SMPC) took back the top spot this month, recording again the highest TTA share of sellers in the market with approximately 26.3 percent. Aboitiz Power (AP) went one spot down with 23.0 percent. Power Sector Assets and Liabilities and Management (PSALM) retained its third spot in the list with 19.2 percent. The top 3 sellers noted a cumulative 68.5 percent share during the billing month.
- Meanwhile, SMPC and AP also had the highest spot share at around 27.1 percent and 21.9 percent, respectively, with PSALM coming in third as well in spot share with 20.9 percent.
- Vivant Energy Corporation (VEC) was up by 3 spots, placing 4th in terms of TTA share and spot share this month.
- San Miguel Corporation (SMC) experienced decline in rank from last month based on TTA as well as Millennium Energy, Inc. (MEI) by 1 and 2 spots, respectively.
- Gregorio Araneta, Inc. (GAI) retained its 8th spot this month in terms of TTA share despite incurring a higher ranking in spot share at 6th.
- Meanwhile, First Gen Corporation (FGC) was off the top 8 list as a result of posting a lower TTA this month as Global Business Power Corporation (GBPC) took its spot.
- Meanwhile, 5 generator trading participants registered negative TTAs which resulted from being net buyers in the spot market.

[10] 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

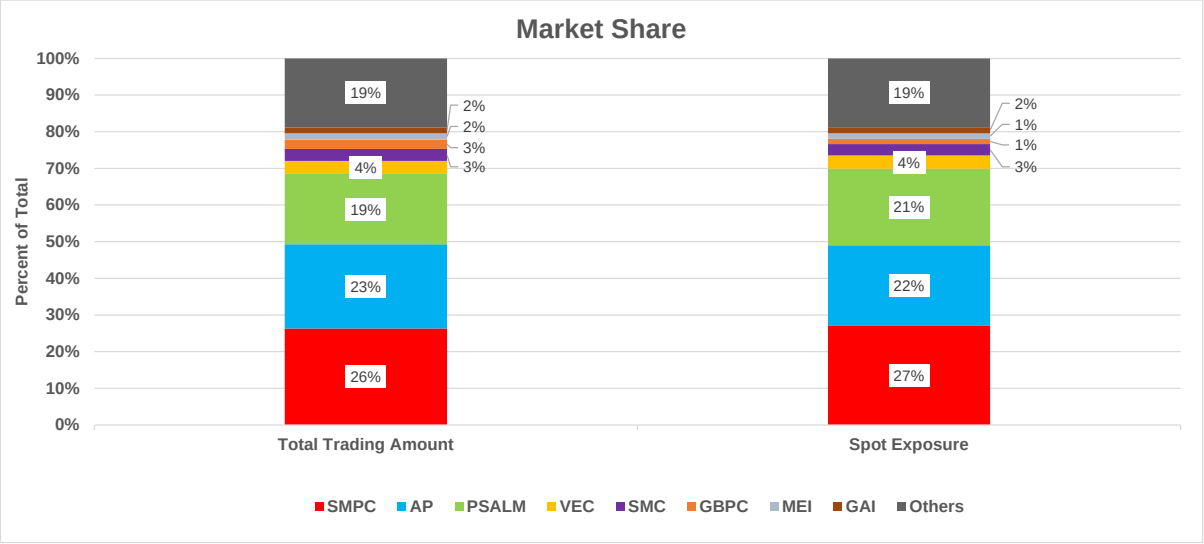


Figure 19. Total Trading Amount and Spot Exposure Share, October 2020

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	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
LUZON	GEO	Tiwi 1	60	05/27/2020 0:02			Forced Outage	Low steam supply. Divert steam supply to unit 2	Jan 1979
LUZON	COAL	Masinloc 1	315	07/20/2020 12:59	10/11/2020 3:12	82.59	Planned Outage	Maintenance Outage until 13 September 2020	Jun 1998
VISAYAS	GEO	Upper Mahiao 3	32	07/22/2020 17:01			Maintenance Outage	Trip with Loss of Excitation. Economic Shutdown	Jul 1997
VISAYAS	GEO	Upper Mahiao 4	32	07/27/2020 0:15	10/01/2020 0:09	66.00	Forced Outage	Emergency repair due to steam leak	Jul 1997
VISAYAS	GEO	Upper Mahiao 2	32	08/06/2020 1:08	10/01/2020 0:10	55.96	Forced Outage	Turbine over speed failure	Jul 1997
LUZON	NATG	Sta. Rita 2	255.7	09/05/2020 4:02	10/20/2020 9:59	45.25	Planned Outage	On planned outage.	Jun 2000
LUZON	NATG	San Gabriel	420	09/05/2020 17:14			Forced Outage	Tripped at 211MW load. System Frequency is 59.401hz.	Mar 2016
VISAYAS	OIL	TPVI 5	6.8	09/05/2020 23:31	10/22/2020 15:26	46.66	Forced Outage	DUE TO LOW STEAM PRESSURE	Aug 1977
VISAYAS	GEO	Upper Mahiao 1	32	09/13/2020 21:16	10/01/2020 0:09	17.12	Forced Outage	Voltage regulation offline trip	Jul 1997
LUZON	OIL	Limay 3	60	09/14/2020 0:01			Planned Outage	Maintenance Outage until 28 October 2020	May 1993
LUZON	COAL	Sual 2	647	09/16/2020 14:45			Forced Outage	Tripped due to high turbine vibration	Oct 1999
VISAYAS	GEO	Leyte 2	39.3	09/19/2020 1:58			Maintenance Outage	Corrective maintenance. data gathering for the high vibration (0200H-0600H)	Jun 1983
VISAYAS	GEO	PGPP1 Unit 2	37.5	09/19/2020 23:40	10/16/2020 12:33	26.54	Maintenance Outage	Offline due to scheduled maintenance.	Aug 1983
VISAYAS	GEO	PGPP1 Unit 1	37.5	09/19/2020 23:47			Maintenance Outage	Offline due to scheduled maintenance.	Aug 1983
VISAYAS	GEO	PGPP1 Unit 3	37.5	09/19/2020 23:48	10/16/2020 4:15	26.19	Maintenance Outage	Offline due to scheduled maintenance.	Aug 1983
VISAYAS	COAL	PALM 1	135	09/24/2020 10:13	09/26/2020 12:22	2.09	Forced Outage	Affected by heavy fluctuation	Mar 2016
VISAYAS	OIL	Bohol 2	4	09/24/2020 20:46	09/28/2020 18:38	3.91	Forced Outage	Failure of turbo charger.	Sep 1978
VISAYAS	OIL	Bohol 1	4	09/24/2020 20:47	09/30/2020 12:32	5.66	Forced Outage	Failure of turbo charger.	Sep 1978
LUZON	COAL	GN Power 1	316	09/26/2020 2:55	09/27/2020 18:21	1.64	Forced Outage	Failed closure of interceptor valve.	May 2013
VISAYAS	COAL	PALM 1	135	09/26/2020 13:01	09/26/2020 15:02	0.08	Forced Outage	Autotripped	Mar 2016
LUZON	COAL	Masinloc 2	344	09/27/2020 6:22	09/27/2020 12:56	0.27	Forced Outage	Generator protection actuated	Jun 1998
VISAYAS	OIL	Bohol 3	4.2	09/28/2020 14:44	09/29/2020 10:32	0.82	Forced Outage	Emergency out due to fuel leak at cylinder 6	Sep 1978
LUZON	OIL	Limay 2	60	09/28/2020 17:38	09/28/2020 18:02	0.02	Forced Outage	Malfunctioned of temperature after turbine	May 1993
LUZON	OIL	Limay 5	60	09/30/2020 0:19	09/30/2020 12:44	0.52	Forced Outage	Declared unavailable due to main fuel pump trouble	Dec 1994
VISAYAS	GEO	Upper Mahiao 1	32	10/01/2020 0:10	10/10/2020 12:28	9.51	Planned Outage	Scheduled PMS by the customer	Jul 1997
VISAYAS	GEO	Upper Mahiao 4	32	10/01/2020 0:10	10/13/2020 15:24	12.63	Planned Outage	Scheduled PMS by the customer	Jul 1997
VISAYAS	GEO	Upper Mahiao 2	32	10/01/2020 0:11	10/13/2020 15:24	12.63	Planned Outage	Scheduled PMS by the customer	Jul 1997
VISAYAS	OIL	PB101 Unit 2	6	10/01/2020 10:58	10/01/2020 13:22	0.10	Forced Outage	Offline due to fuel leak at Cyl. 3R. hifh pressure pipe	Jan 1978
LUZON	OIL	Limay 5	60	10/01/2020 16:01	10/01/2020 23:37	0.32	Forced Outage	Declared unavailable due to replacement of air filter on air intake	Dec 1994
LUZON	GEO	Tiwi 6	57	10/02/2020 8:12	10/02/2020 18:34	0.43	Forced Outage	Affected by planned shutdown of Tiwi C 230kV Bus 2 because of upgrading of CVT 8-PD	Jan 1979
VISAYAS	OIL	TPC Carmen 1	10	10/02/2020 13:14	10/02/2020 15:30	0.09	Forced Outage	ASPA	Mar 1979
LUZON	GEO	Tiwi 6	57	10/02/2020 19:12	10/02/2020 20:18	0.05	Forced Outage	Transformer excitation system trip	Jan 1979
LUZON	OIL	Limay 2	60	10/03/2020 0:02	10/11/2020 11:10	8.46	Planned Outage	Hotgas Inspection	May 1993
LUZON	COAL	SMC 4	150	10/03/2020 11:01	10/07/2020 14:38	4.15	Forced Outage	Emergency shutdown due to boiler tube leak.	Sep 2018
LUZON	NATG	Avion 2	50.3	10/03/2020 11:59	10/03/2020 15:42	0.15	Forced Outage	Tripped due to liquid manifold drain valve trouble.	Aug 2015
LUZON	OIL	Limay 5	60	10/03/2020 12:10	10/03/2020 14:45	0.11	Forced Outage	Emergency shutdown due to minimal arcing at Brush Lift Off Device.	Dec 1994
LUZON	GEO	Bacman 3	20	10/04/2020 0:10	10/05/2020 5:11	1.21	Forced Outage	Corrective works on the two phase line of the Fluid Collection and Reinjection System (FC	Sep 1993
LUZON	OIL	TMO Unit 1	63.8	10/04/2020 0:28	10/08/2020 18:28	4.75	Planned Outage	Planned maintenance.	Nov 2013
LUZON	NATG	Avion 2	50.3	10/04/2020 21:15	10/04/2020 23:51	0.11	Forced Outage	Tripped while on Firm RR. The initial cause of outage is liquid fuel drain valve trouble.	Aug 2015
LUZON	NATG	Avion 2	50.3	10/05/2020 9:07	10/05/2020 14:54	0.24	Forced Outage	Troubleshooting of liqiud fuel manifold drain valve	Aug 2015
LUZON	HYD	Magat 3	97	10/07/2020 5:07	10/07/2020 11:12	0.25	Forced Outage	Generator protection trouble.	Oct 1983
LUZON	HYD	Magat 4	97	10/07/2020 10:38	10/07/2020 17:06	0.27	Forced Outage	Failed to start due to excitation problem.	Oct 1983
LUZON	GEO	Makban 10	20	10/08/2020 11:54	10/09/2020 2:39	0.61	Forced Outage	Simultaneous tripping of Makban-Ormat 69kV Line	Apr 1979
LUZON	GEO	Makban 9	20	10/08/2020 11:54	10/09/2020 2:39	0.61	Forced Outage	Simultaneous tripping of Makban-Ormat 69kV Line	Apr 1979
LUZON	GEO	Makban Ormat 1	3	10/08/2020 11:54	10/08/2020 16:49	0.20	Forced Outage	Isolated due to tripping of Makban-Ormat 69kV Line	Apr 1979
LUZON	GEO	Makban Ormat 2	3	10/08/2020 11:54	10/08/2020 16:49	0.20	Forced Outage	Isolated due to tripping of Makban-Ormat 69kV Line	Apr 1979
LUZON	OIL	Limay 1	60	10/08/2020 16:48	10/08/2020 21:32	0.20	Forced Outage	Temperature after turbine high	May 1993
VISAYAS	COAL	PEDC 2	83.7	10/09/2020 15:38	10/09/2020 17:04	0.06	Forced Outage	Drum level high	Apr 2011
LUZON	OIL	TMO Unit 2	49	10/10/2020 0:16	10/16/2020 16:01	6.66	Planned Outage	GOP.	Nov 2013
VISAYAS	GEO	Mahanagdong B1	5	10/13/2020 0:20	10/25/2020 18:09	12.74	Maintenance Outage	To facilitate minor non-standard PMS.	Jul 1997
VISAYAS	COAL	CEDC 2	82	10/13/2020 7:20	10/13/2020 11:17	0.16	Forced Outage	TRPPED (UNDER ASSESMENT)	Jun 2010
VISAYAS	COAL	CEDC 3	82	10/13/2020 7:20	10/13/2020 9:20	0.08	Forced Outage	TRPPED (UNDER ASSESMENT)	Jan 2011
LUZON	HYD	Bakun 1	38	10/15/2020 9:46	10/15/2020 12:42	0.12	Forced Outage	Isolation due to tripping of Bauang-Bacnotan 230kV line and Bauang PCB 8-05CB04BAU.	Feb 2001
LUZON	HYD	Kalayaan 3	180	10/15/2020 19:10	10/15/2020 20:52	0.07	Forced Outage	Discordance at spherical valve.	May 2004
LUZON	COAL	Masinloc 1	315	10/15/2020 21:27	10/19/2020 3:20	3.25	Forced Outage	Unit Auxiliary Transformer oil leak at bushing.	Jun 1998
LUZON	COAL	Calaca 2	300	10/16/2020 16:36			Forced Outage	Boiler Tube Leak.	Sep 1984
VISAYAS	COAL	THVI 1	169	10/16/2020 19:35	10/23/2020 8:36	6.54	Forced Outage	TRIPPED. UNDER ASSESSMENT	Dec 2017
VISAYAS	GEO	Upper Mahiao 4	32	10/16/2020 20:38	10/16/2020 22:29	0.08	Forced Outage	Under assessment. AVR problem	Jul 1997
LUZON	HYD	Ambuklao 1	35	10/17/2020 1:04	10/17/2020 4:51	0.16	Forced Outage	Tripped due to boken shear pin.	Dec 1956
LUZON	HYD	Caliraya 2	14	10/17/2020 7:01	10/17/2020 8:21	0.06	Forced Outage	Excitation trouble.	Oct 2002
LUZON	HYD	Kalayaan 3	180	10/17/2020 8:57	10/17/2020 9:18	0.01	Forced Outage	Actuation of differential protection for generator and transformer	May 2004
LUZON	HYD	Magat 2	97	10/17/2020 9:29	10/17/2020 10:22	0.04	Forced Outage	Rotor earth fault indication.	Aug 1983
LUZON	HYD	Magat 2	97	10/19/2020 9:55	10/19/2020 11:09	0.05	Forced Outage	Intake gate problem.	Aug 1983
LUZON	GEO	Makban 3	63.2	10/19/2020 10:20	10/22/2020 4:11	2.74	Forced Outage	Affected by the tripping of Makban B-C 230kV Tie Line	Apr 1979
VISAYAS	OIL	PDPP3 G	13	10/19/2020 18:56	10/19/2020 21:11	0.09	Forced Outage	Emergency shutdown due to fuel leak.	Mar 2005
LUZON	GEO	Makban 4	63.2	10/20/2020 10:20	10/20/2020 11:10	0.03	Forced Outage	Affected by the tripping of Makban B-C 230kV Tie Line	Apr 1979
LUZON	GEO	Makban 5	55	10/20/2020 10:20	10/20/2020 16:12	0.24	Forced Outage	Affected by the tripping of Makban B-C 230kV Tie Line	Apr 1979
LUZON	GEO	Makban 7	20	10/20/2020 10:20	10/20/2020 14:39	0.18	Forced Outage	Affected by the tripping of Makban B-C 230kV Tie Line	Apr 1979
LUZON	GEO	Makban 8	20	10/20/2020 10:20	10/20/2020 14:26	0.17	Forced Outage	Affected by the tripping of Makban B-C 230kV Tie Line	Apr 1979
VISAYAS	OIL	PB101 Unit 3	6	10/20/2020 14:29	10/21/2020 7:24	0.70	Forced Outage	Offline. Internal trouble.	Jan 1978
LUZON	NATG	Sta. Rita 2	255.7	10/20/2020 17:24	10/21/2020 10:54	0.73	Planned Outage	Commissioning test after major inspection	Jun 2000
VISAYAS	OIL	PDPP3 E	12	10/20/2020 18:43	10/21/2020 18:34	0.99	Forced Outage	Emergency shutdown due to cut-off cyl. head stud bolt cylinder A-1.	Mar 2005
VISAYAS	COAL	TPC Sangi 2	85	10/20/2020 22:55	10/24/2020 15:05	3.67	Forced Outage	Tube leak	Dec 2013
VISAYAS	COAL	THVI 2	169	10/21/2020 3:56			Forced Outage	Under assessment	Dec 2017
LUZON	GEO	Makban 5	55	10/21/2020 8:19			Maintenance Outage	Maintenance Outage	Apr 1979
LUZON	COAL	SMC 1	150	10/21/2020 10:22	10/21/2020 15:14	0.20	Forced Outage	Main Steam Drum Level high	Nov 2016
LUZON	HYD	Botocan 1	10	10/21/2020 12:01	10/21/2020 14:53	0.12	Forced Outage	Isolated due to tripping of Lumban-Caliraya 69kV Line	Jan 1947
LUZON	HYD	Botocan 2	10	10/21/2020 12:01	10/21/2020 14:53	0.12	Forced Outage	Isolated due to tripping of Lumban-Caliraya 69kV Line	Jan 1947
LUZON	HYD	Caliraya 1	14	10/21/2020 12:01	10/21/2020 14:17	0.09	Forced Outage	Isolated due to tripping of Lumban-Caliraya 69kV Line	Oct 2002
LUZON	HYD	Caliraya 2	14	10/21/2020 12:01	10/21/2020 14:17	0.09	Forced Outage	Isolated due to tripping of Lumban-Caliraya 69kV Line	Oct 2002
VISAYAS	COAL	PEDC 1	83.7	10/21/2020 19:38	10/21/2020 20:41	0.04	Forced Outage	Autotrippped due to Heavy Fluctuation	Nov 2010
VISAYAS	COAL	PEDC 2	83.7	10/21/2020 19:38	10/21/2020 20:45	0.05	Forced Outage	Autotrippped due to Heavy Fluctuation	Apr 2011
VISAYAS	OIL	PDPP3 E	12	10/21/2020 19:38	10/21/2020 21:42	0.09	Forced Outage	Autotrippped due to Heavy Fluctuation	Mar 2005
VISAYAS	OIL	PDPP3 G	13	10/21/2020 19:38	10/21/2020 21:44	0.09	Forced Outage	Autotrippped due to Heavy Fluctuation	Mar 2005
LUZON	NATG	Sta. Rita 2	255.7	10/21/2020 19:42	10/23/2020 9:25	1.57	Planned Outage	Commissioning test after major overhaul	Jun 2000
VISAYAS	COAL	PEDC 1	83.7	10/21/2020 21:56	10/22/2020 3:39	0.24	Forced Outage	Offline to conduct corrective maintenance due to steam leak	Nov 2010
VISAYAS	OIL	TPC Carmen 1	10	10/22/2020 19:16	10/23/2020 8:42	0.56	Forced Outage	Due to gas cut	Mar 1979
VISAYAS	GEO	Leyte 1	41	10/23/2020 0:38			Maintenance Outage	Repair leaking steam line	Jun 1983
LUZON	GEO	Makban 2	63.2	10/23/2020 12:20			Forced Outage	Excessive oil leak at main oil pump	Apr 1979
LUZON	GEO	Makban 4	63.2	10/23/2020 16:45	10/23/2020 17:41	0.04	Forced Outage	Affected by the tripping of Makban B-C and C-D 230kV Tie line	Apr 1979
LUZON	GEO	Makban 7	20	10/23/2020 16:45	10/23/2020 20:05	0.14	Forced Outage	Affected by the tripping of Makban B-C and C-D 230kV Tie line	Apr 1979
LUZON	GEO	Makban 8	20	10/23/2020 16:45	10/23/2020 19:42	0.12	Forced Outage	Affected by the tripping of Makban B-C and C-D 230kV Tie line	Apr 1979
LUZON	NATG	Sta. Rita 2	255.7	10/23/2020 19:18	10/24/2020 9:42	0.60	Planned Outage	Commissioning test after major overhaul	Jun 2000
VISAYAS	OIL	TPC Carmen 2	10	10/23/2020 22:44	10/24/2020 0:26	0.07	Forced Outage	DUE TO HIGH INTENSITY OF OIL MIST	Mar 1979
LUZON	COAL	SLTEC 2	122.9	10/23/2020 23:05			Forced Outage	Coal feeder trouble (chute leak)	Aug 2015
LUZON	NATG	Sta. Rita 2	255.7	10/24/2020 11:16			Forced Outage	Main Steam drain leak	Jun 2000
VISAYAS	GEO	PGPP1 Unit 3	37.5	10/25/2020 5:05			Forced Outage	Offline to conduct corrective works on cooling tower fans	Aug 1983
VISAYAS	OIL	TPC Carmen 2	10	10/25/2020 10:45	10/25/2020 12:08	0.06	Forced Outage	UNIT TRIPPED DUE TO OIL HIGH AND OIL MIST INDICATION. ONGOING ASSESSMENT	Mar 1979
LUZON	GEO	Tiwi 5	57	10/25/2020 16:19			Forced Outage	On houseload operation as contingency for the passage of Typhoon Quinta	Jan 1979
LUZON	GEO	Bacman 3	20	10/25/2020 16:58			Forced Outage	Emergency shutdown as contingency for the passage of Typhoon Quinta	Sep 1993
LUZON	GEO	Bacman 1	60	10/25/2020 17:11			Forced Outage	Emergency shutdown as contingency for the passage of Typhoon Quinta	Sep 1993
LUZON	GEO	Bacman 2	60	10/25/2020 17:14			Forced Outage	Tripped while on house load operation as contingency for the passage of Typhoon Quint	Sep 1993
LUZON	GEO	Tiwi 2	60	10/25/2020 18:32			Forced Outage	From houseload as contingency measure due to the passage of Typhoon QUINTA	Jan 1979
LUZON	GEO	Tiwi 6	57	10/25/2020 18:41			Forced Outage	Tripped while on house load operation as contingency for the passage of Typhoon Quint	Jan 1979