Market Surveillance Committee
Monthly Market Assessment

26 July to 25 August 2022

December 2022

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

MONTHLY MARKET ASSESSMENT REPORT

(26 July – 25 August 2022)

Philippine Electricity Market Corporation

MMAR-2022-08

MONTHLY MARKET ASSESSMENT REPORT

(26 July – 25 August 2022)

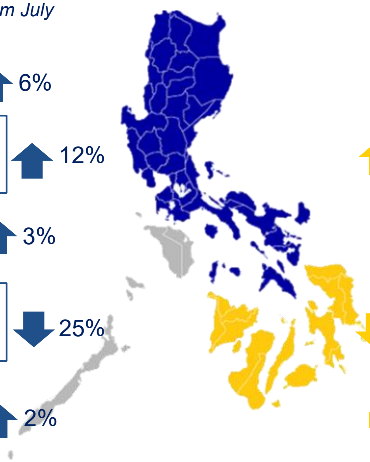
Philippine Electricity Market Corporation

MMAR-2022-08

ASSESSMENT OF THE MARKET

SUMMARY OF PRICING CONDITIONS

LUZON	from July
Normal 6,530 intervals (73%)	6%
PSM 1,395 interval (16%)	12%
PEN 437 intervals (5%)	3%
SPC 420 intervals (5%)	25%
AP 146 interval (2%)	2%



from July	VISAYAS
9%	Normal 6,562 intervals (74%)
11%	PSM 1,319 interval (15%)
3%	PEN 436 intervals (5%)
23%	SPC 465 intervals (5%)
0%	AP 146 interval (2%)

- Intervals imposed with price substitution methodology (PSM) increased during the month in review, signifying higher instances of system/regional congestions.
- Intervals with pricing error notices were mainly due to inappropriate input data which affected prices and schedules across 435 intervals both for Luzon and Visayas.
- The cumulative 3-day average computation of the generator-weighted average prices (GWAP) breached the PHP9,000/MWh threshold and resulted in the imposition of secondary price cap (SPC) for 420 intervals from 2,197 intervals last month, both in Luzon and Visayas brought about by depleted supply margin from 26-28 July and 25 August 2022. On another note, regional imposition of secondary price cap was also observed for 45 intervals for Visayas region during those instances when the inter-connection between the grids was unavailable.
- Market Intervention (MI) was implemented in Luzon and Visayas for 146 intervals on 13 August from 0050H to 1240H and 24 August 2022 from 1635H to 1645H due to inaccessibility of the Market Management System, during which administered prices (AP) were imposed to the market.

NOTABLE HIGHLIGHTS

1. ***Weather Disturbance Alert Notice (WDAN)*** was noted during the month due to the onset of 3 typhoons in August period.
2. With the onset of the rainy season, system demand declined.
   - Average decrease of 3.1% or from 10,971 MW previously to 10,269 MW this subject billing period
3. Capacities on outage also decreased from 3,816 MW last month to 3,368 MW this month coupled with the decrease in the system demand, which then subsequently led for the resulting market prices to decline
   - Average market price of PHP7,261/MWh from PHP8,918/MWh last month.
4. Observed congestion in transmission lines and transformer equipment resulted from the nature and current design of the transmission system, as well as N-1 contingency impositions by the System Operator (SO). Some notable congestions were as follows:
   - Samboan-Amlan line 2 was congested 35% of the time or equivalent to 3,138 intervals as a result of the continuous unavailability of Samboan-Amlan line 1.
   - Maasin-Ubay line 1 was congested for 2,257 intervals or equivalent to 25% of the time brought about by natural congestion as a result of the frequent maximization of the line's capacity limit.

MONTHLY MARKET ASSESSMENT REPORT

(26 July – 25 August 2022)

Philippine Electricity Market Corporation

MMAR-2022-08

MARKET OUTCOME

SUPPLY MARGIN

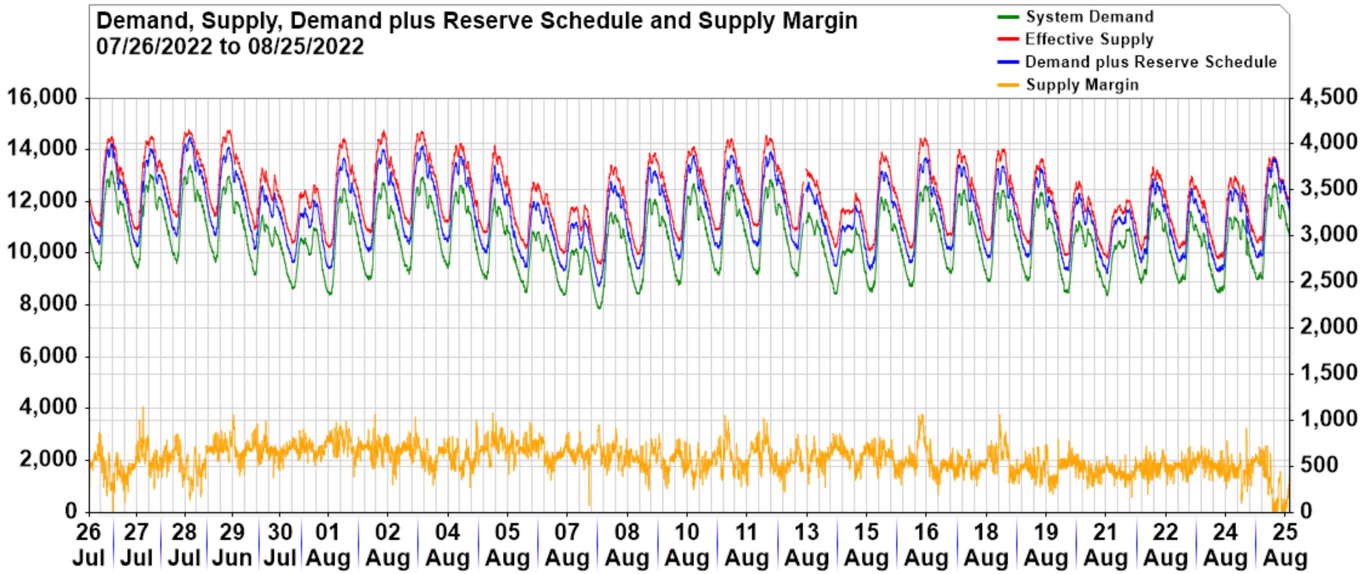
584
MW
(492 MW in July)

EFFECTIVE SUPPLY

12,207
MW
(12,487MW in July)

DEMAND PLUS RESERVE SCHEDULE

11,623
MW
(11,996MW in July)



- The effective supply for the August 2022 billing month decreased to an average of 12,207 MW from last month's 12,487 MW. Among the noted reasons for the depleted supply was the higher ramp limited capacities this month which is considered in the determination of the effective supply.
- On the other hand, electricity demand with consideration of reserve schedules likewise posted a decrease by an average of 3.1% or was noted to be at an average level of 11,623 MW as compared to last month's 11,996 MW brought about by, among others, the cooler weather of the rainy season which influenced the behavior of electricity consumers.
- Considering the factors above, the level of supply margin improved by 18.7%, or was recorded at an average of 584 MW from 492 MW last billing month.

MONTHLY MARKET ASSESSMENT REPORT

(26 July – 25 August 2022)

Philippine Electricity Market Corporation

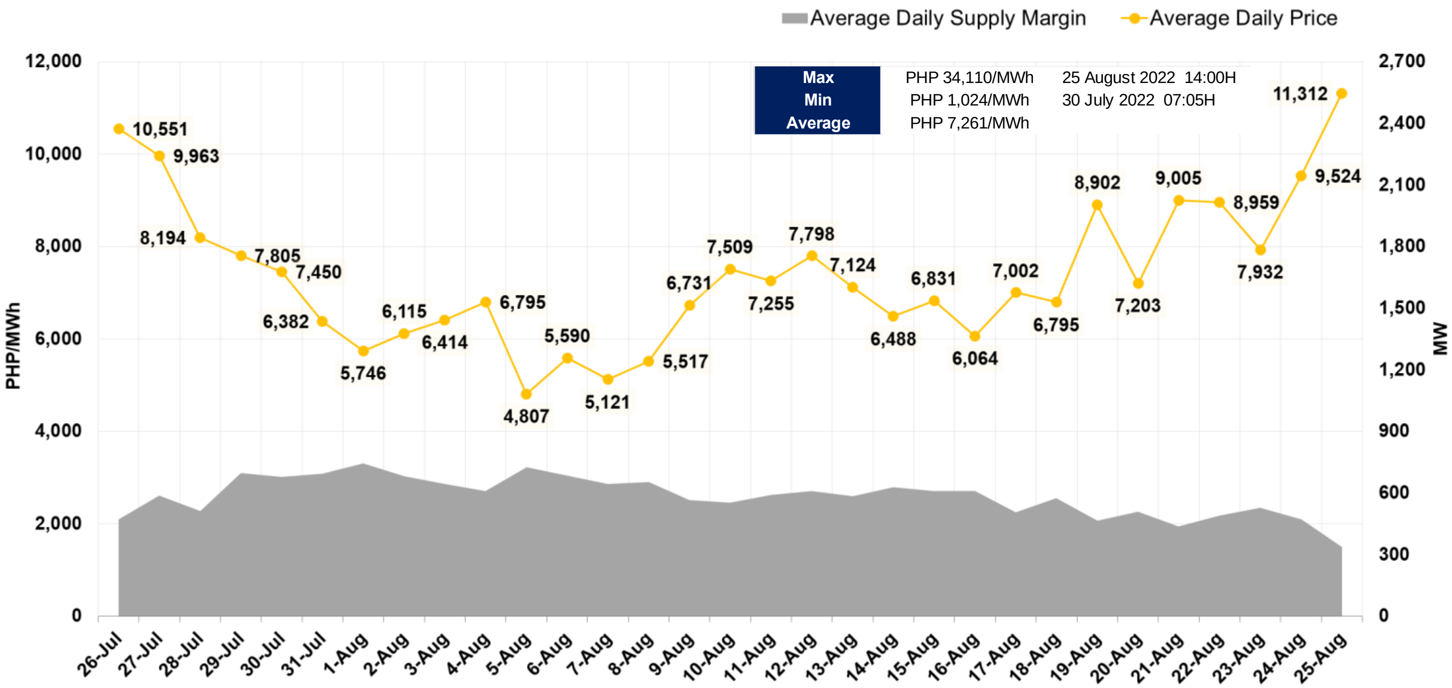
MMAR-2022-08

MARKET OUTCOME

Zone	Average LWAP (PHP/MWh)
NLUZON	6,977.19
MMANILA	7,185.52
SLUZON	7,107.68
LEYTE	7,254.13
CEBU	7,200.22
NEGROS	9,275.40
BOHOL	9,051.46
PANAY	9,574.29

Given the dynamics of supply and demand, the level of market price decreased, on average, by 18.6% or was noted at an average of PHP7,261/MWh from PHP8,918/MWh last month. Year-on-year comparison posted a 49.6% increase from an average of PHP4,853/MWh last year noting that outages this year were significantly higher than in August 2021 coupled with the expected economic growth resulting in higher consumption this year.

The 15 June 2021 incident involving the underwater drilling operations of the DPWH that damaged one of the submarine cables of NGCP connecting the Cebu-Negros islands has kept congestion events persistent in the area which, in turn, continuously affected the power rates in the Visayas region causing disparity as depicted in the table of prices.



PRICE

7,261

PHP/MWh

(PHP8,918/MWh in July)

MONTHLY MARKET ASSESSMENT REPORT

(26 July – 25 August 2022)

Philippine Electricity Market Corporation

MMAR-2022-08

MARKET OUTCOME

RAMP LIMITED CAPACITY

2,891

MW

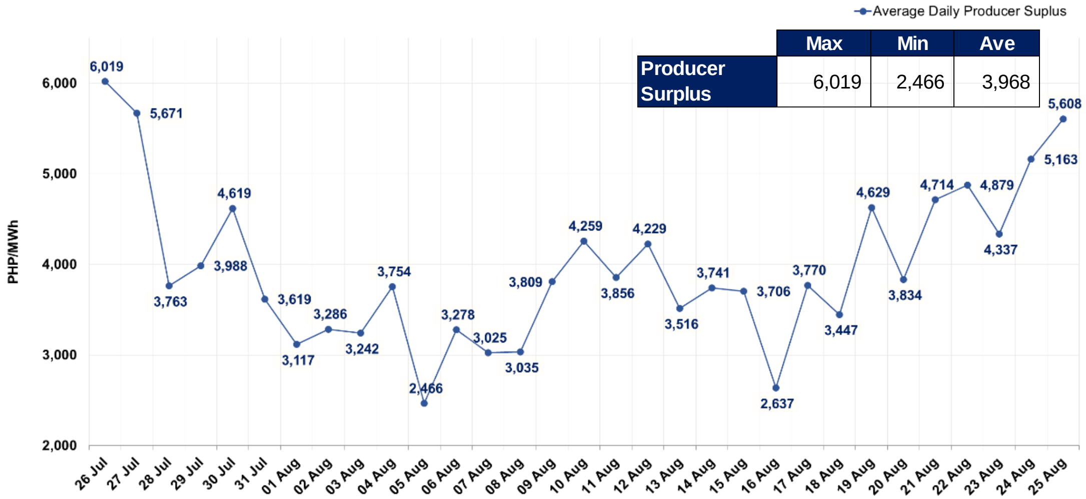
(2,205MW in July)

PRODUCER SURPLUS

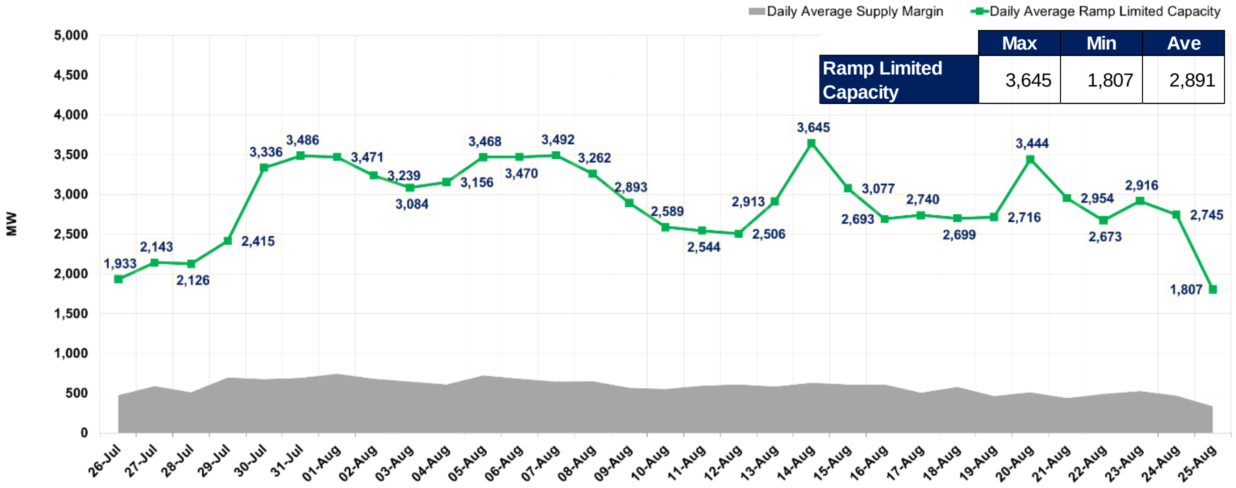
3,968

PHP/MWh

(PHP4,9902/MWh in July)



	Max	Min	Ave
Producer Surplus	6,019	2,466	3,968



	Max	Min	Ave
Ramp Limited Capacity	3,645	1,807	2,891

Producer/generator surplus, averaged at PHP3,968/MWh this month from PHP4,990/MWh last month. This is an average of 20 percent decrease as compared to July 2022.

For the month of August, **ramp-limited capacity** increased by an average of 31% from an average of 2,205 MW last month to 2,891 MW this month.

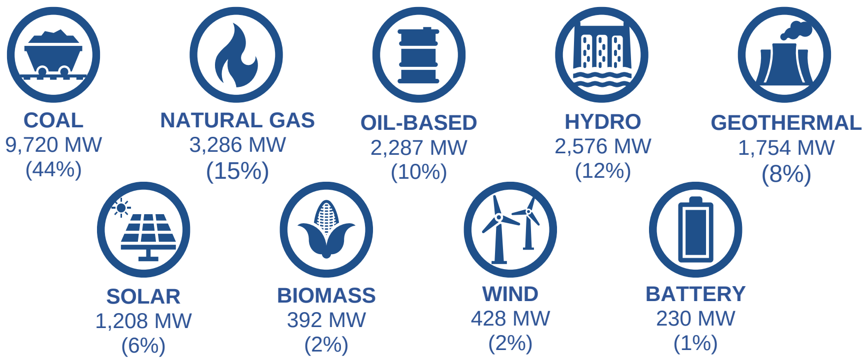
MONTHLY MARKET ASSESSMENT REPORT

(26 July – 25 August 2022)

Philippine Electricity Market Corporation

MMAR-2022-08

CAPACITY PROFILE



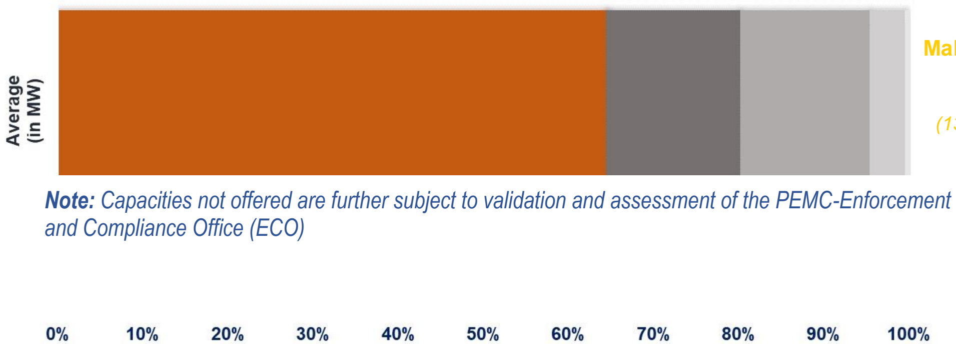
62%
Capacity Offered/ Nominated
13,466 MW
(13,477 MW in July)

17%
Capacity Not Offered/ Not Nominated
3,664 MW
(3,710 MW in July)

15%
Capacity on Outage
3,368 MW
(3,816 in July)

6%
Capacity of Plants on Commissioning
1,265 MW
(785 MW in July)

1%
Malaya Capacity (for MRU)
130 MW
(130 MW in July)



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

- The WESM's registered capacity declined in August 2022 from 21,913.8 MW to 21,880.9 MW due to changes in registration of the following plants:

Status	Market Participant Name	Market Trading Node	Plant Type	Pmax (MW)		Change (MW)
				Old	New	
Deregistered	Southwest Luzon Power Generation Corporation	03SLPGC_G03	Oil-based	25	0	(25)
		03SLPGC_G04		25	0	(25)
New	Mindoro Grid Corporation	01BUTAO_G01	Hydro	0	1.3	1.3
Decreased	Greencore Power Solutions 3, Inc.	01ARAYSOL_G01	Hydro	51	50	(1)
	RASLAG Corp.	01RASLAG_G01	Solar	9	8.2	(0.8)
	RASLAG Corp.	01RASLAG_G02	Solar	13.1	10.5	(2.6)
	Southwest Luzon Power Generation Corporation	03SLPGC_G02	Oil-based	150	149.6	(0.4)
TOTAL						(53.5)

- For the billing month of August 2022, the capacity of plants undergoing commissioning tests grew to 1,265 MW (equivalent to 6% of the total registered capacity) from 785 MW in July 2022.
  - Provisional Certificates of Approval to Connect (PCATCs) of 5 plants have been extended while 4 plants were still on commissioning test with expired PCATCs
  - Meanwhile, 3 plants have just started their respective commissioning tests.

MONTHLY MARKET ASSESSMENT REPORT

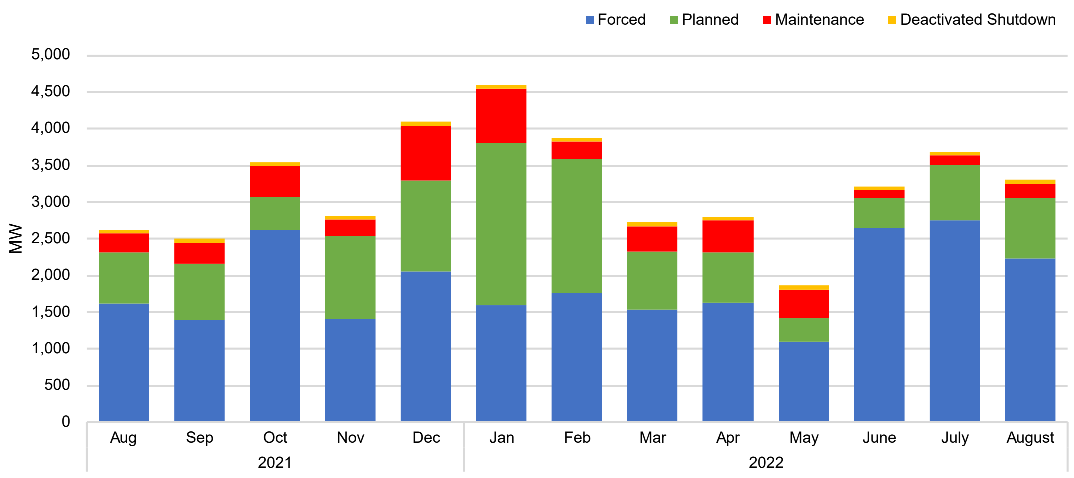
(26 July – 25 August 2022)

Philippine Electricity Market Corporation

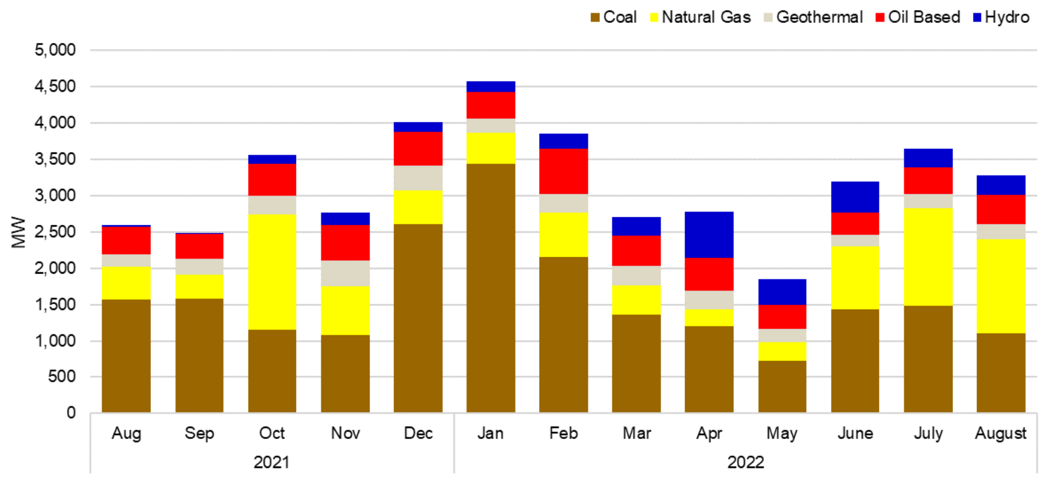
MMAR-2022-08

CAPACITY PROFILE

CAPACITY ON OUTAGE BY CATEGORY



CAPACITY ON OUTAGE BY PLANT TYPE



The August 2022 billing month opened with a relatively high level of capacities on outage at around 3,700 MW. However, outage levels declined on 01-03 August 2022 at around 2,300 MW following the resumption of large Geothermal power plants that were previously on outage which then again went on outage towards the end of the month.

The comprehensive information on plant outages in all categories is shown in Annex A, for convenience and reference.

Outages accounted for 15% of the total registered capacity, or an average of 3,368 MW, which is lower than the 3,816 MW during the July 2022 billing period. The decrease in the average capacities on outage was mainly due to the decrease in Coal power plants under forced outage category previously caused by technical issues of the plants.

As the month ended, the outage level was at about an average of 4,200 MW.

	August 2022		
	Min	Max	Average
Capacity on Outage	2,278 MW	4,512 MW	3,368 MW

MONTHLY MARKET ASSESSMENT REPORT

(26 July – 25 August 2022)

Philippine Electricity Market Corporation

MMAR-2022-08

MARKET TRANSACTIONS

BILATERAL CONTRACT QUANTITIES

83.8%

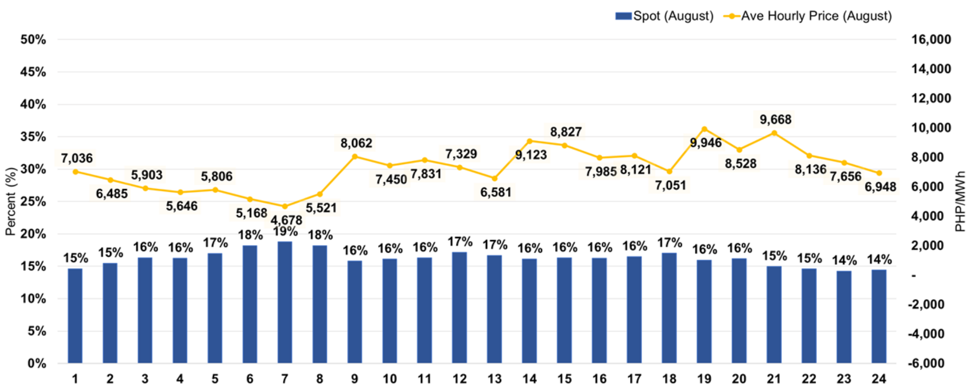
(89.3% in July)

SPOT EXPOSURES

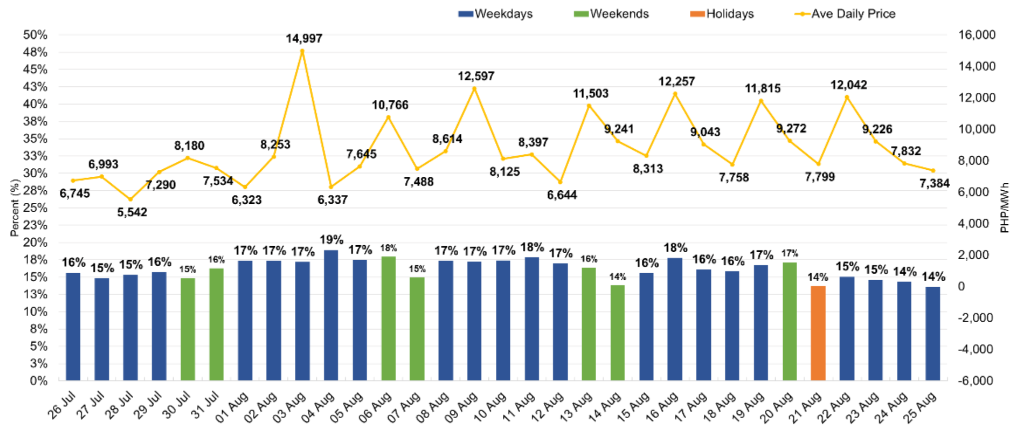
16.2%

(10.7% in July)

HOURLY SPOT



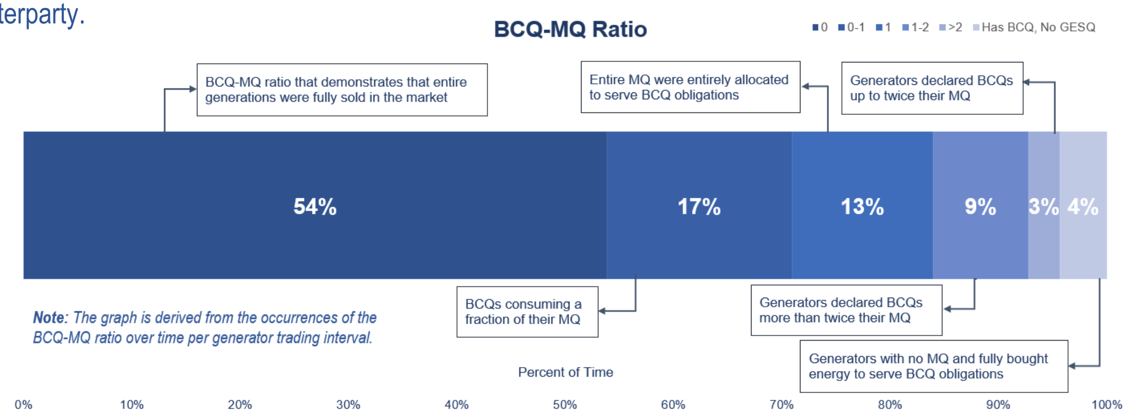
DAILY SPOT



Total spot quantities of generator participants in August posted an average of 16.1% during off-peak hours and 16.3% during peak hours – the resulting increase was mainly influenced by the change in energy sourcing of some participants due to changes in contractual arrangements with their counterparty.

Spot exposures during weekdays averaged at 16.4% while it was 15.7% during weekends.

BCQ-MQ Ratio



***Note:** The graph is derived from the occurrences of the BCQ-MQ ratio over time per generator trading interval.*

MONTHLY MARKET ASSESSMENT REPORT

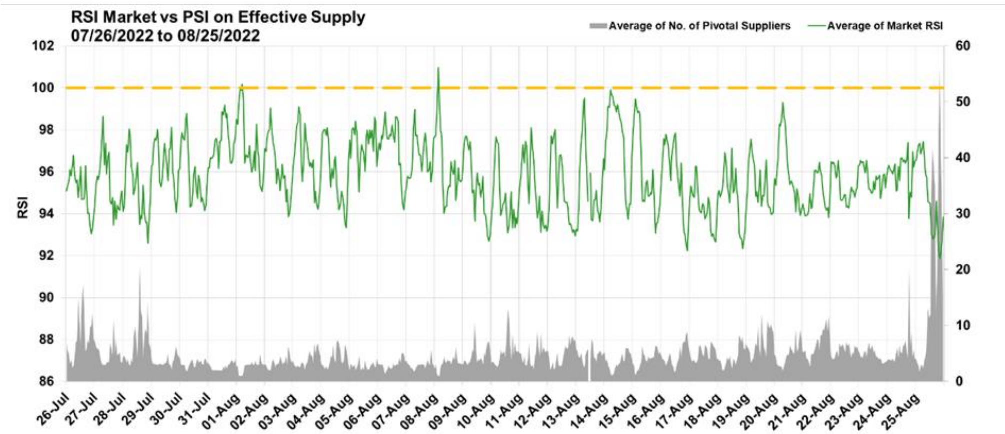
(26 July – 25 August 2022)

Philippine Electricity Market Corporation

MMAR-2022-08

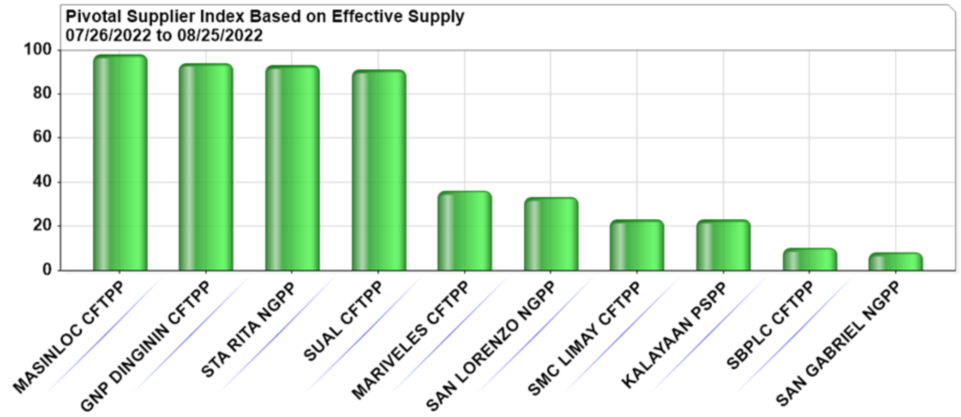
STRUCTURAL COMPETITION INDICES

MARKET RSI



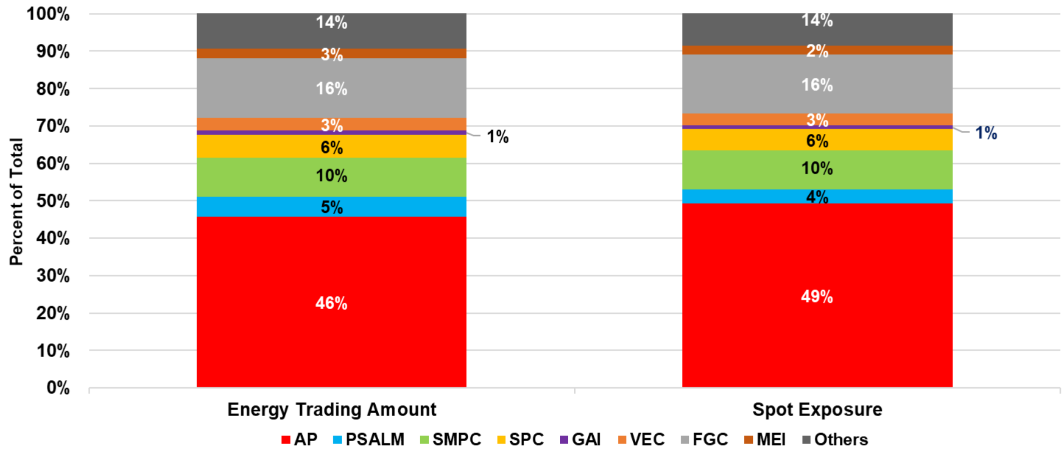
- The market Residual Supply Index (RSI) was below the 100% mark for about 99.1% of the time this month compared to about 99.8% last month.
- During the August 2022 billing month, the market resulted in RSIs ranging from 90.8 to 101.6% and averaging at 95.8%. The average market prices for intervals with RSI below 100% was PHP7,449/MWh while those with RSIs above 100 was PHP686/MWh.

PIVOTAL PLANTS



- A total of 152 power plants were pivotal during the period from 155 last month, with 71% or 108 plants coming from the Luzon region and 44 plants from the Visayas region.
- The noted decrease in effective supply, due to higher level of ramp limited capacities, translated to a low RSI and high number of pivotal suppliers per dispatch interval.

ENERGY TRADING AMOUNT AND SPOT EXPOSURE



- The top 3 participants with highest shares in both measures comprised 76% of the total ETA and spot exposure which may indicate high level of market concentration that affects market competition.

DEFINITIONS, REFERENCES, AND INTERPRETATION

- **Pricing Error Notice (PEN)**
  - a pricing algorithm in the market and are categorized according to cause, as either Network congestion pricing errors or non-congestion pricing errors. Pricing error notice shall be issued only for the market run where the pricing error is determined by the Market Operator to have occurred.

- **Secondary Price Cap (SPC)**
  - a preventive mitigating measure instituted by the ERC to avoid excessive high market prices through its imposition on succeeding intervals, upon breach of PHP9,000/MWh Rolling Average of the generator-weighted average price (GWAP) for a running period of 3 days or 864 5-minute intervals. In this case, market prices are capped at PHP6,245/MWh.

- **Administered Price (AP)**
  - administered price determination methodology which shall be implemented by the Market Operator to impose administered prices on dispatch intervals under market suspension or market intervention.
  - administered price shall be established by the Market Operator in accordance with guiding principles as set forth by the WESM rules.

- **Generator/Producer Surplus**
  - represents the difference between the price a generator receives and their willingness to sell for each quantity.
  - daily average price of the producer/generator surplus is derived from the daily weighted average price of all the generator trading participants during peak and off-peak hours. Increase and decrease in the daily weighted average price depend on the generator schedule per dispatch interval

- **Price Substitution Methodology (PSM)**
  - a pricing algorithm that shall be implemented in all the regions where the WESM is in operation. In cases where a region/s has no interconnection with other regions, or has no exchange of power with other regions, this region/s shall be separately assessed for the application of the price substitution methodology.
  - The price substitution methodology shall apply to a *dispatch interval* when the trigger factor exceeds the threshold, which shall be set at 0.2, subject to annual review.
  - The dispatch schedules arrived at in the original (constrained) market solution for the relevant dispatch interval will stand and will be the basis for dispatch by the System Operator irrespective of the results of the unconstrained solution. Redispatch of generation units will be implemented by the System Operator in accordance with relevant provisions of the WESM Rules and Market Manuals, the Philippine Grid Code and other relevant rules, regulations, issuances, guidelines, and procedures.

- **Ramp Limited Capacity**
  - generator restricted capacities due to the plants' intrinsic ramp rates.
  - Ramp rate is essentially the speed at which a generator can increase (ramp up) or decrease (ramp down) generation. Generating units have different characteristics, making some more suited to supplying certain needed functions.

- **Energy Trading Amount**
  - The energy trading amount for a trading participant and settlement interval shall be determined using the final energy dispatch prices for that node, the gross energy settlement quantities, and bilateral contract quantities for that node in the dispatch intervals within the same settlement interval.

Annex A. List of Major Plant Outages

Plant Type	Plant/ Unit Name	Capacity (MW)	Date Out	Date In	Duration (Days)	Outage Type	Remarks
Luzon							
COAL	GNP Dinginin 1	668	08/20/2022 23:45			Maintenance Outage	Maintenance outage to address critical vibration issue on turbine bearing no.1
COAL	Kepco Salcon 1	103	08/15/2022 20:20	08/20/2022 0:10	4	Forced Outage	BOILER TUBE LEAK
COAL	SMC 1	150	08/06/2022 14:10			Forced Outage	Tripped from 146MW load due to furnacce pressure high.
COAL	Sual 2	647	07/22/2022 21:29	07/26/2022 11:12	4	Maintenance Outage	To replace boiler circulating pump 2Cs heat exchanger and cleaning of strainer.
GEO	Makban 4	63.2	08/13/2022 16:19			Planned Outage	Maintenance Outage until September 25. 2022
GEO	Malitbog BC	14	08/13/2022 11:52			Forced Outage	Tripped.
GEO	Malitbog 2	72	08/10/2022 0:06	08/16/2022 15:40	7	Maintenance Outage	7 days scheduled maintenance
GEO	Tiwi 1	60	11/30/2021 18:32			Forced Outage	Steam supply diverted to Unit 2.
HYD	Angat M 3	50	11/02/2021 8:15			Forced Outage	Draw-out of Main Unit 3 generator breaker.
HYD	Ambuklao 2	35	07/25/2022 8:01	07/29/2022 7:57	4	Forced Outage	On maintenance outage for replacement of shaft seal and inspection of turbine bearing
NATG	Avion 2	45.8	08/19/2022 0:05	08/22/2022 0:42	3	Planned Outage	To conduct annual inspection.
OIL	Isabel 3	15.06	08/21/2022 22:24	08/24/2022 18:03	3	Forced Outage	Cut-out. reserve shutdown.
OIL	Limay 5	60	08/18/2022 0:04	08/19/2022 18:26	2	Maintenance Outage	To conduct vibration correction. (Vibration Testing Balancing)
OIL	Limay 2	60	08/06/2022 0:01	08/09/2022 17:10	4	Planned Outage	On planned outage on August 6-12. 2022.
OIL	Isabel 2	10.1	07/29/2022 19:01	08/01/2022 7:58	3	Forced Outage	Reserve Shutdown.
OIL	Isabel 6	10.18	07/26/2022 14:14	07/28/2022 10:26	2	Forced Outage	Cut out (Reserve Shutdown).
OIL	Limay 7	60	07/23/2022 0:05	07/26/2022 17:01	4	Planned Outage	Maintenance Outage until July 29. 2022
SOLR	Silay	20	08/09/2022 16:18	08/11/2022 8:10	2	Forced Outage	Isolated due to tripping of 69kV Bacolod-Silay Sub TL
Visayas							
BIOF	CBEC	13.5	07/30/2022 0:02	08/11/2022 12:02	13	Forced Outage	Delayed completion of Preventive Maintenance
BIOF	SCBE	7.4	05/06/2022 6:45			Forced Outage	Offline due to internal problem
BIOF	IPower 2	10.8	07/01/2022 0:02	07/28/2022 22:05	28	Planned Outage	Planned Outage
BIOF	CBEC	13.5	07/09/2022 0:08	07/30/2022 0:01	21	Planned Outage	Planned Outage
COAL	Masinloc 1	315	08/24/2022 23:59			Maintenance Outage	Maintenance outage to repair suspected boiler tube leak.
COAL	GN Power 2	316	08/23/2022 18:30			Forced Outage	Emergency shutdown due to boiler tube leak.
COAL	SLPGC 2	149.6	08/14/2022 19:18	08/25/2022 3:47	10	Forced Outage	Emergency shutdown due to boiler tube leak.
COAL	PALM 1	135	08/14/2022 18:43	08/22/2022 23:54	8	Forced Outage	Possible Boiler Tube Leak
COAL	SLTEC 1	122	08/11/2022 23:43			Planned Outage	Maintenance Outage until September 20. 2022
COAL	Pagbilao 2	382	08/06/2022 0:46			Planned Outage	On planned outage on August 6 - September 4. 2022.
COAL	CEDC 3	82	08/05/2022 0:15			Planned Outage	MANUALLY CUT-OUT FOR PMS
COAL	TPC-Sangi 1	82	07/01/2022 23:58	07/31/2022 10:30	29	Planned Outage	ANNUAL PMS (GOMP)
COAL	THVI 2	169	07/21/2022 10:27	07/26/2022 22:05	5	Maintenance Outage	CORRECTIVE MAINTENANCE
COAL	Pagbilao 1	382	07/04/2022 0:29	07/31/2022 6:59	27	Planned Outage	Annual Preventive Maintenance Schedule
COAL	Calaca 2	300	11/18/2021 7:49			Forced Outage	Tripped due to generator stator ground fault
GEO	Tiwi 6	57	08/23/2022 10:51	08/25/2022 0:15	2	Forced Outage	Auto tripped by tranformer diferential.
GEO	PGPP2 Unit 1	20	08/15/2022 0:02			Maintenance Outage	Offline due to PMS.
GEO	Mahanagdong A2	5	08/13/2022 11:52			Forced Outage	Tripped.
GEO	PGPP1 Unit 3	37.5	08/04/2022 0:06	08/13/2022 13:08	10	Maintenance Outage	Shutdown due to maintenance activity.
GEO	Tiwi 6	57	07/05/2022 0:03	08/02/2022 18:47	29	Planned Outage	Unit overhaul
GEO	PGPP2 Unit 3	20	07/05/2022 0:01	08/01/2022 21:45	28	Maintenance Outage	Offline due to scheduled maintenance activities
GEO	Makban 6	55	04/11/2013 22:44			Deactivated Shutdown	Conducted gas compressor test
GEO	Mahanagdong A2	5	05/04/2022 17:44	08/13/2022 11:52	101	Forced Outage	Replacement of Transformer Differential Relay
HYD	Magat 3	97	08/13/2022 7:05	08/15/2022 6:43	2	Maintenance Outage	To facilitate repair on low voltage bushing oil leak for Power Transformer 3
HYD	Caliraya 2	14	08/08/2022 8:01	08/18/2022 22:07	11	Planned Outage	Planned Outage
HYD	Caliraya 1	14	08/02/2022 8:01			Planned Outage	Planned Outage
HYD	San Roque 1	145	03/14/2022 0:01			Planned Outage	Plammed outage from 14 March--09 September 2022.
HYD	Angat M 4	50	02/14/2022 0:01			Planned Outage	Planned Outage
NATG	Avion 1	47.2	08/21/2022 0:07			Planned Outage	To conduct annual inspection.
NATG	San Gabriel	420	08/05/2022 23:45	08/10/2022 18:54	5	Planned Outage	On planned outage on 06--08 August 2022.
NATG	Ilijan B3	220	06/05/2022 0:01			Forced Outage	End of Cooperation Period of Ilijan NGPP.
NATG	Ilijan B2	190	06/05/2022 0:01			Forced Outage	End of Cooperation Period of Ilijan NGPP.
NATG	Ilijan B1	190	05/02/2022 20:08			Forced Outage	Malampaya Natural Gas Supply Restriction
NATG	Ilijan A3	220	06/04/2022 22:42			Forced Outage	End of Cooperation Period of Ilijan NGPP.
NATG	Ilijan A2	190	06/04/2022 19:45			Forced Outage	End of Cooperation Period of Ilijan NGPP.
NATG	Ilijan A1	190	06/04/2022 22:53			Forced Outage	End of Cooperation Period of Ilijan NGPP.
OIL	Isabel 5	15.12	08/19/2022 20:14	08/24/2022 18:03	5	Forced Outage	Cut-out. reserve shutdown.
OIL	Isabel 3	15.06	08/19/2022 20:14	08/21/2022 22:01	2	Forced Outage	Cut-out. reserve shutdown.
OIL	Isabel 1	10.04	08/19/2022 20:14	08/24/2022 18:12	5	Forced Outage	Cut-out. reserve shutdown.
OIL	PDPP3 E	12	08/03/2022 18:09	08/06/2022 12:41	3	Forced Outage	OFFLINE (Engine Governor problem.)
OIL	Isabel 1	10.04	07/29/2022 19:01	08/01/2022 7:58	3	Forced Outage	Reserve Shutdown.
OIL	TPVI 5	6.8	07/28/2022 11:45	08/25/2022 13:11	28	Forced Outage	Starting failure due to high engine vibration at free end side
OIL	TPVI 6	6.8	07/28/2022 10:37	08/25/2022 13:14	28	Forced Outage	Starting failure due to fuel leak at connecting piece of cylinder piece A3
OIL	Isabel 4	10.17	07/26/2022 14:21	07/28/2022 10:22	2	Forced Outage	Cut out (Reserve Shutdown).
OIL	Isabel 3	15.06	07/26/2022 14:21	07/28/2022 10:22	2	Forced Outage	Cut out (Reserve Shutdown).
OIL	Isabel 5	15.12	07/26/2022 14:20	07/28/2022 10:22	2	Forced Outage	Cut out (Reserve Shutdown).
OIL	SLPGC 4	25	02/10/2022 18:07			Forced Outage	Emergency shutdown due to low bearing lube oil pressure.
OIL	SLPGC 3	25	01/22/2022 21:39			Forced Outage	Declared unavailable due to turbine lube oil sump metal chips detected
OIL	MGTPP	85	09/29/2021 16:52			Forced Outage	Tripped from 14MW due to turbine bearing shaft vibration
OIL	Malaya 1	300	05/03/2019 18:21			Forced Outage	Declared unavailable due to motorization of unit generator caused by the non-opening of phase B of PCB 8-05CB08MAL
OIL	Limay 1	60	07/11/2022 0:01	08/22/2022 11:44	42	Planned Outage	Planned outage.
WIND	SLWind	54	07/05/2022 20:33			Forced Outage	Auto tripped due to line fault.

Notes:
1. *List of Major Plant Outages includes all generating units with capacities above 10MW located in Luzon and above 5MW for plants located in Visayas.*
2. *Outages with duration of 1 day and below were not included in the list of Major Plant Outages*
3. *Daily outages with drastic effects to the market are monitored through separate indices*