# Market Surveillance Committee Monthly Market Assessment

**26 May to 25 June 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 May – 25 June 2022)**

Philippine Electricity Market Corporation

MMAR-2022-06

# MONTHLY MARKET ASSESSMENT REPORT

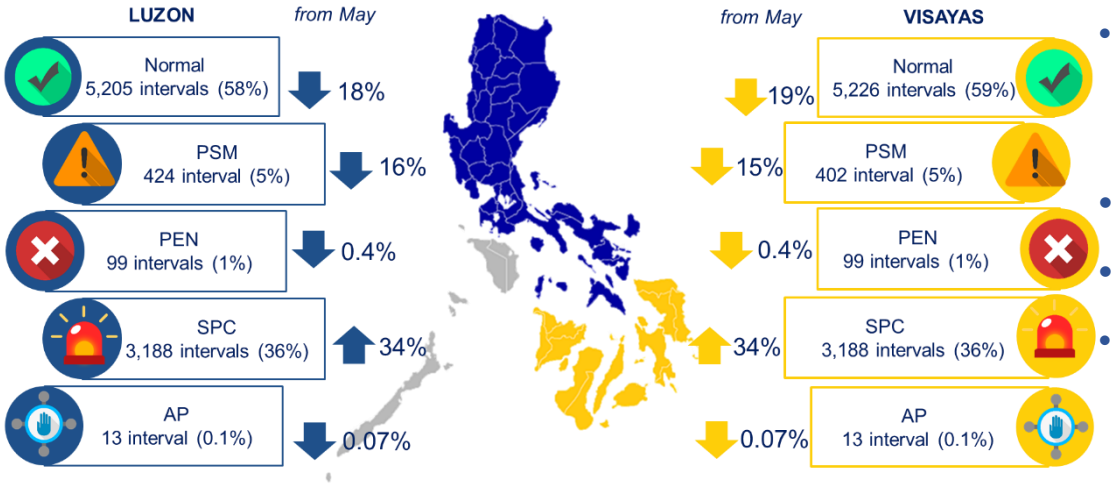
**(26 May – 25 June 2022)**

Philippine Electricity Market Corporation

MMAR-2022-06

## ASSESSMENT OF THE MARKET

### SUMMARY OF PRICING CONDITIONS




- 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 for 3,188 intervals from 109 intervals last month, both in Luzon and Visayas brought about by depleted supply margin from 03 to 06 June 2022 and 10 to 25 June 2022 leading to relatively high prices in the market.
- Intervals with pricing error notices were mainly due to inappropriate input data which affected prices and schedules across 99 intervals both for Luzon and Visayas.
- Significant decrease in intervals imposed with price substitution methodology (PSM) during the month in review.
- Market Intervention (MI) was implemented in Luzon and Visayas for 13 intervals on 09 May 2022 at 2325H, 17 June 2022 from 1035H to 1110H due to Market Systems switch over as part of Business Continuity Management System (BCMS) drill, and on 18 June 2022 from 1310H to 1325H due to failure in publication of the market results, hence the declaration.

### NOTABLE HIGHLIGHTS

1. System demand increased despite the onset of rainy season.
   - Average increase of 0.4% or equivalent to 11,497 MW from 11,450 MW last month
2. ***Tripping of the 230KV Hermosa-BCCPP lines 1 and 2*** caused grid disturbances leading to the isolation of various power plants from Luzon Grid and subsequently led to the placing of the grid under ***red alert level.***
   - SO placed the Luzon grid under red alert level on 18 June 2022 at 0245H due to generation deficiency
3. Due to the significant increase in the level of capacities on outage from 1,932 MW last month to 3,310 MW this month, supply level decreased, and subsequently resulted in the depleted supply margin which led to higher level of market prices.
   - Average market price of PHP8,515/MWh from PHP6,205/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:
   - Maasin-Ubay line 1 was congested for 2,838 intervals or equivalent to 32% of the time brought about by natural congestion as a result of the frequent binding of the line's capacity limit, and
   - Samboan-Amlan line 2 was also congested 13% of the time or equivalent to 1,160 intervals as a result of the continuous unavailability of Samboan-Amlan line 1.

# MONTHLY MARKET ASSESSMENT REPORT

**(26 May – 25 June 2022)**

Philippine Electricity Market Corporation

MMAR-2022-06

## MARKET OUTCOME

### SUPPLY MARGIN

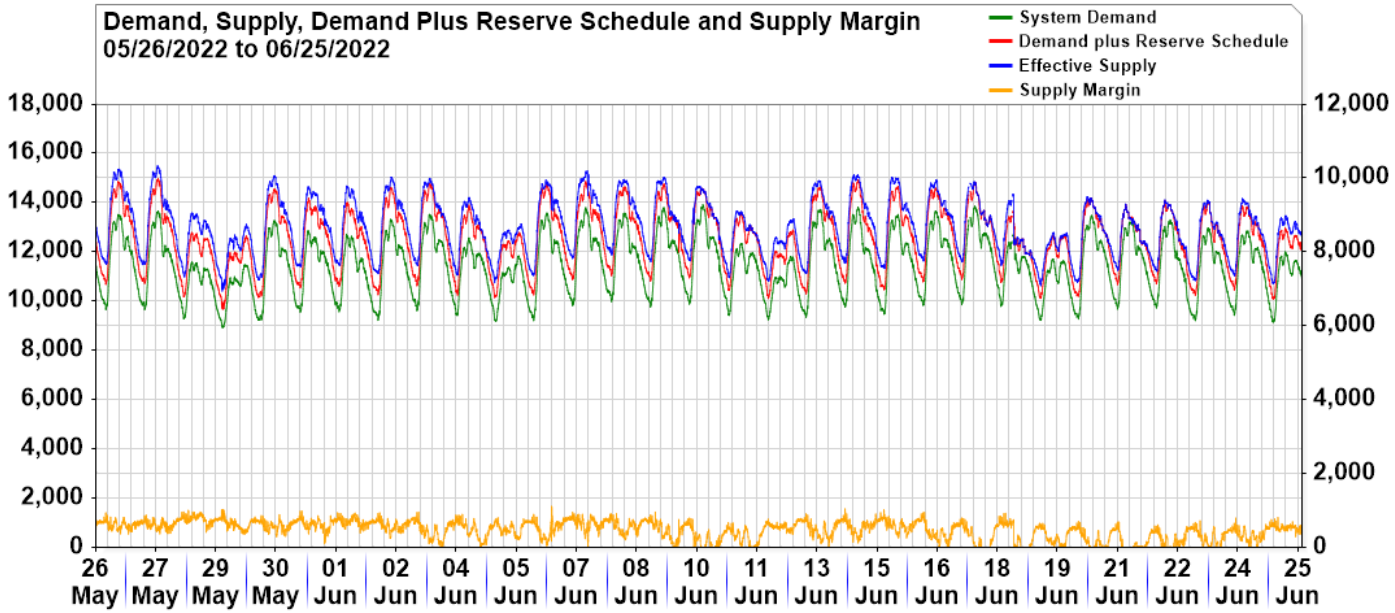
478
MW
*(695 MW in May)*

### EFFECTIVE SUPPLY

13,041
MW
*(13,208 MW in May)*

### DEMAND PLUS RESERVE SCHEDULE

12,563
MW
*(12,512 MW in May)*




- The average effective supply in June 2022 billing month decreased to 13,041 MW from last month's 13,208 MW. The decline in the effective supply was mainly attributable to the line outage due to the tripping of Hermosa-BCCPP lines.
- On the other hand, system demand, including reserve requirements, posted a slight increase by an average of 0.4 percent or an average capacity level of 12,563 MW as compared to last month's 12,512 MW brought about by, among the others, relatively high temperature during the subject period and the expected economic growth resulting in higher demand from the consumers.
- Considering the factors above, the level of supply margin plunged by 31.3%, or was recorded at an average of 478 MW from 695 MW last billing month.

# MONTHLY MARKET ASSESSMENT REPORT

**(26 May – 25 June 2022)**

Philippine Electricity Market Corporation

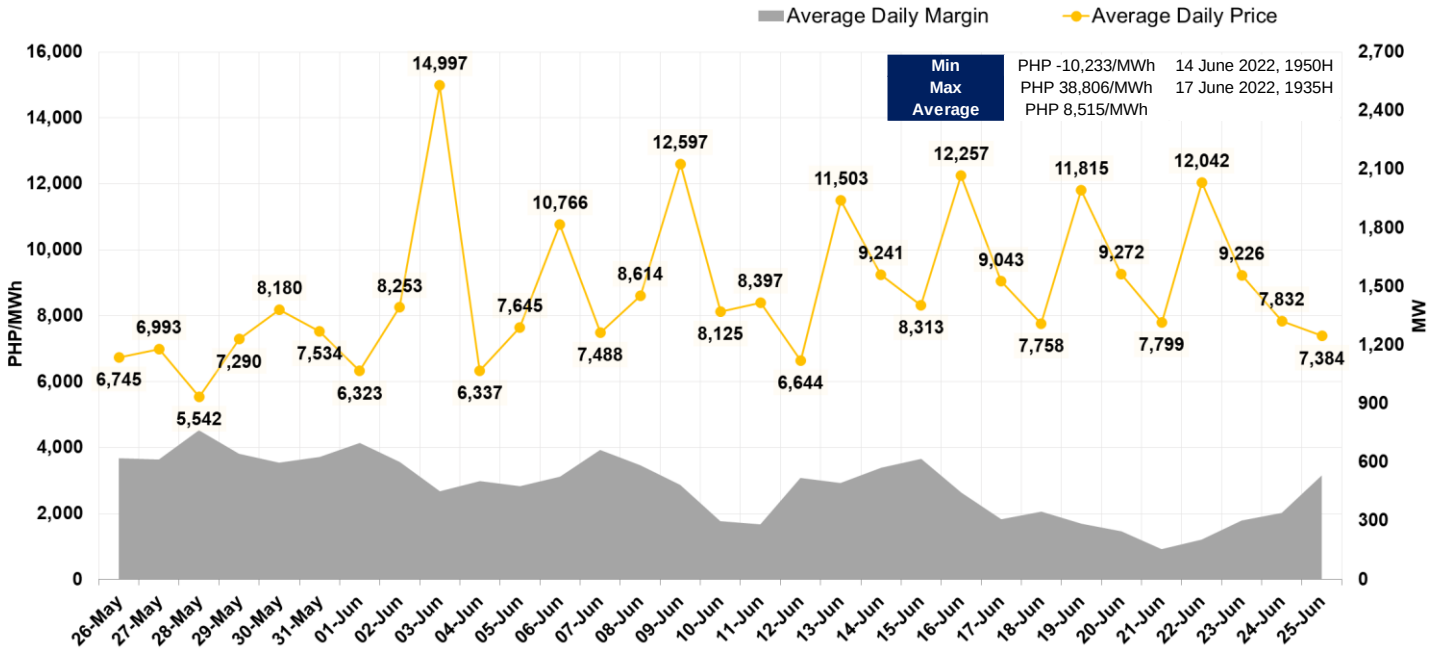
MMAR-2022-06

| Zone | Average LWAP (PHP/MWh) |
|---|---|
| NLUZON | 8,425.33 |
| MMANILA | 8,600.85 |
| SLUZON | 8,465.17 |
| LEYTE | 8,554.35 |
| CEBU | 8,288.71 |
| NEGROS | 8,509.93 |
| BOHOL | 10,712.85 |
| PANAY | 8,668.25 |

## MARKET OUTCOME

Given the dynamics between the supply and demand, where the supply was not ample enough to suffice for the system requirements and likewise affected the resulting supply margin (declined from the previous month), the market price outcome increased, on average, by 37.2 percent or was noted at an average of PHP8,515/MWh from PHP6,205/MWh last month. Year-on-year comparison of monthly average prices posted a 23.1% increase from an average of PHP6,919/MWh last year noting that outages this year is significantly high than in June 2021.

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

8,515
PHP/MWh
*(PHP6,205/MWh in May)*

# MONTHLY MARKET ASSESSMENT REPORT

**(26 May – 25 June 2022)**

Philippine Electricity Market Corporation

MMAR-2022-06

## MARKET OUTCOME

### RAMP LIMITED CAPACITY

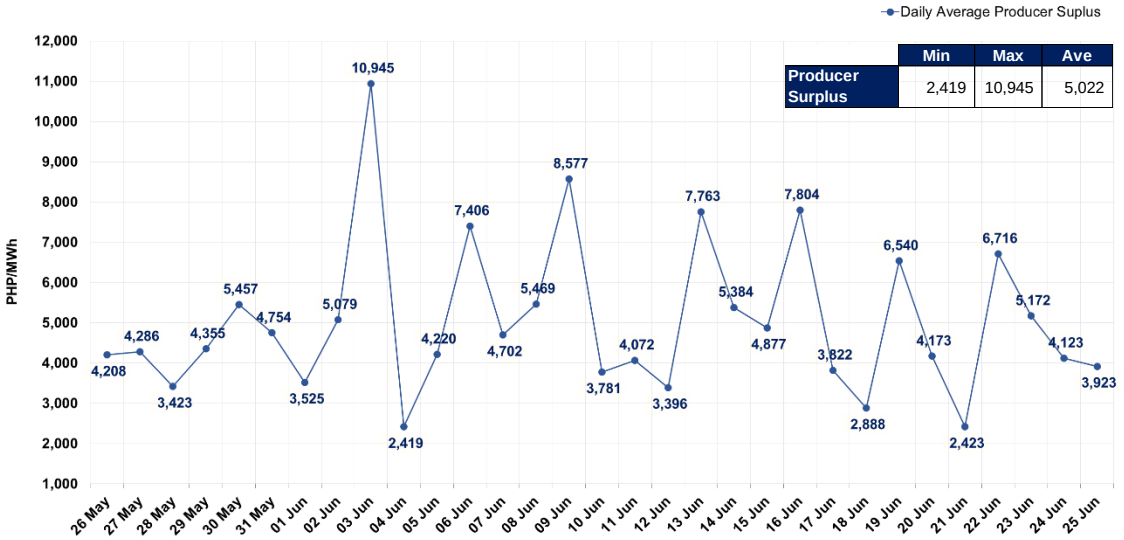
2,170 MW

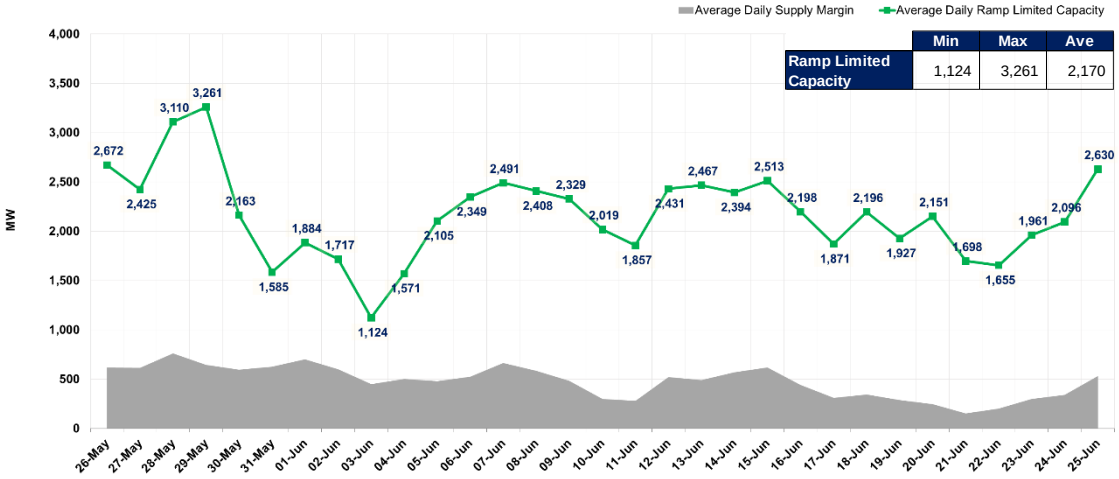
*(2,189MW in May)*

### PRODUCER SURPLUS

5,022 PHP/MWh

*(PHP3,976/MWh in May)*




**Producer/generator surplus**, averaged at PHP5,022/MWh this month from PHP3,976/MWh across all generators last month. This is an average of 22 percent decrease as compared to May 2022.

For the month of June, **ramp-limited capacity** slightly dip by an average of 1% from an average of 2,189 last month to 2,170 this month.

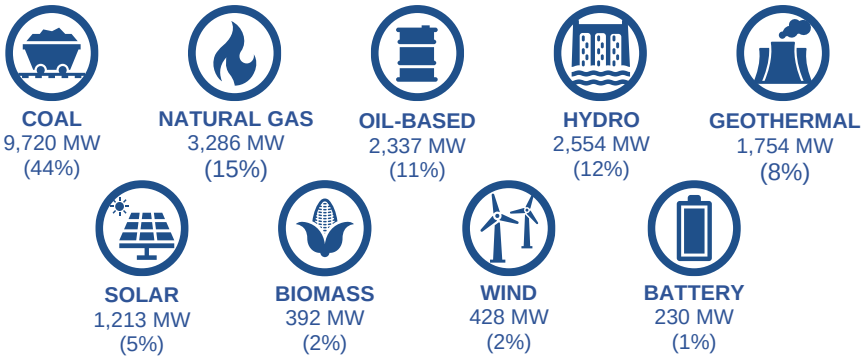
# MONTHLY MARKET ASSESSMENT REPORT

**(26 May – 25 June 2022)**

Philippine Electricity Market Corporation

MMAR-2022-06

## CAPACITY PROFILE




- The WESM's registered capacity grew in June 2022 from 21,889.9 MW to 21,913.8 MW. The capacity of Hydro, Solar, and Biomass power plants changed, which resulted in the net increase for the month's registered capacity.
  - Hypergreen Energy Corporation, San Carlos Biopower Inc's Biomass power plants, and Gigasol 3 Inc's Solar power plant decreased their capacities.
  - Meanwhile, Unit 3 of Raslag's solar power plant and the hydro power plant of Taft Hydroenergy Corporation were added to the registered capacity mix.

**64%**
**Capacity Offered/ Nominated**
**14,066 MW**
*(14,903 MW in May)*

**16%**
**Capacity Not Offered/ Not Nominated**
**3,464 MW**
*(3,667 MW in May)*

**15%**
**Outage Capacity**
**3,310 MW**
*(1,932 in May)*

**4%**
**Capacity of Plants on Commissioning**
**909 MW**
*(1,206 MW in May)*


**1%**
**Malaya Capacity (for MRU)**
**130 MW**
*(131 MW in May)*

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

- For the June 2022 billing month, the capacity of plants undergoing commissioning tests dropped to 909 MW (equivalent to 4.1% of the total registered capacity) from 1,206 MW in May 2022. Provisional Certificate of Approval to Connect (PCATC) of 4 plants have been extended while 13 plants were still on commissioning test with expired PCATCs
- Meanwhile, 3 plants have just started their respective commissioning tests.

# MONTHLY MARKET ASSESSMENT REPORT

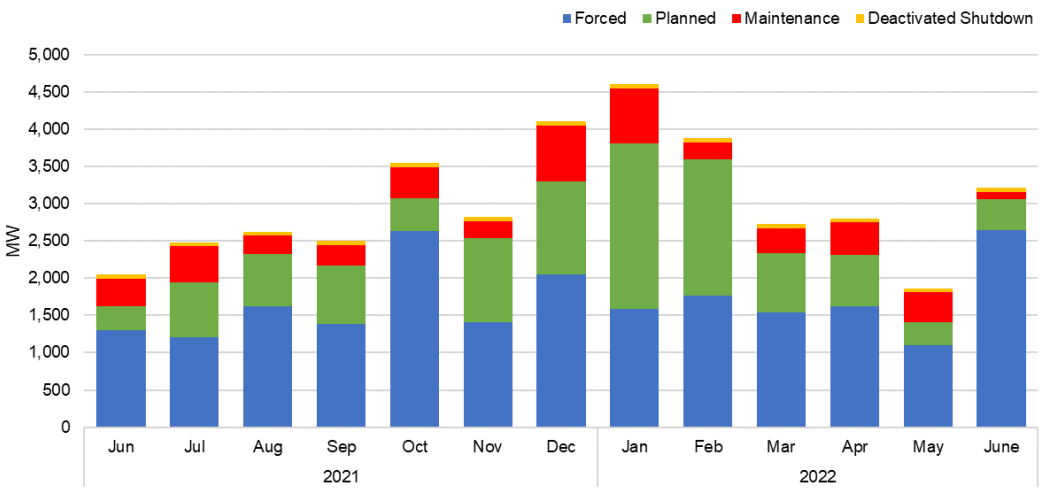
**(26 May – 25 June 2022)**

Philippine Electricity Market Corporation

MMAR-2022-06

## CAPACITY PROFILE

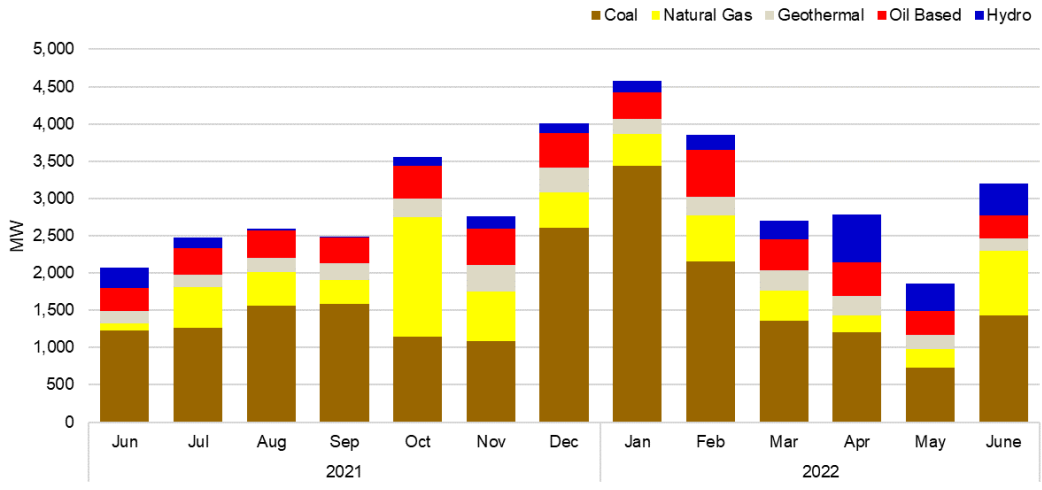
### CAPACITY ON OUTAGE BY CATEGORY




Average capacity on outage was generally observed to have increased for the June billing. The main reason for this increase was by the tripping of Hermosa-BCCPP lines that occurred on 18 June 2022 and technical issues of the plants which subsequently led for various power plants in Luzon to be isolated from the grid placing them under forced outage categorization. The comprehensive information on plant outages in all categories is shown in Annex A, for convenience and reference.

| | JUNE 2022 | | |
|---|---|---|---|
| | Min | Max | Average |
| Capacity on Outage | 1,438 MW | 5,946 MW | 3,310 MW |

### CAPACITY ON OUTAGE BY PLANT TYPE




In terms of plant type, the unavailability of the generators affected by the line tripping resulted in the increase of the capacities on outage to 3,209 MW. Unlike the previous month when most of the plants went online during the subject period due to the directive from the National Government in line with the holding of National Elections, outages for the June billing month significantly increased caused mostly by technical issues of Coal plants and was worsened by the line outage that barred various power plants from injecting power to the grid. Meanwhile, the increase in outages for Natural gas plant was mainly affected by the end of cooperation period between the power plant and its provider.

As the month ended, the outage level was maintained its high level at about an average of 3,400 MW.

# MONTHLY MARKET ASSESSMENT REPORT

**(26 May – 25 June 2022)**

Philippine Electricity Market Corporation

MMAR-2022-06

## MARKET TRANSACTIONS

### BILATERAL CONTRACT QUANTITIES

88.2%

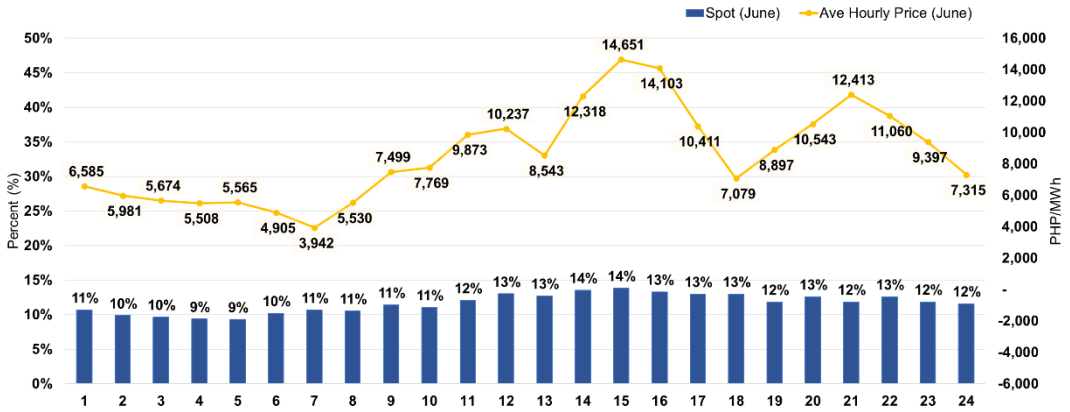
*(86.3% in May)*

### SPOT EXPOSURES

11.8%

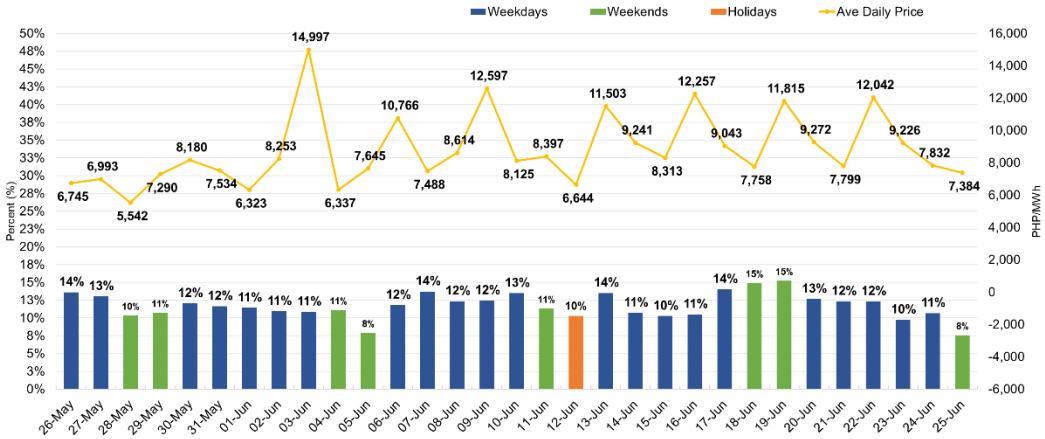
*(13.7% in May)*

### HOURLY SPOT

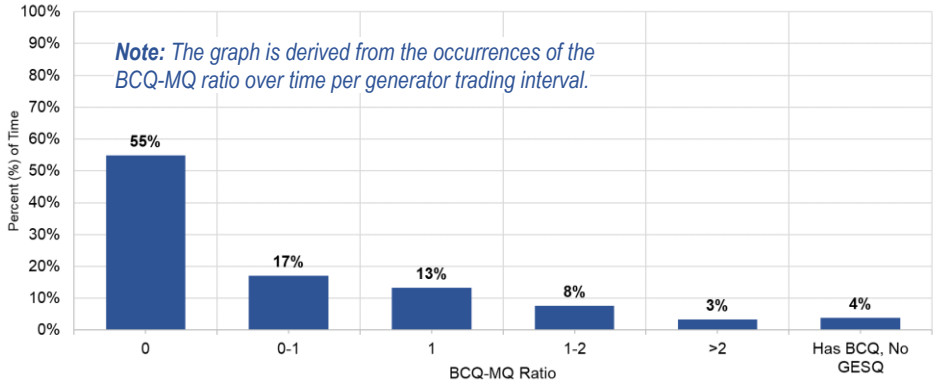



Total spot quantities of generator participants in June were noted at an average of 10.7% during off-peak and 12.7% during peak hours. Prices during the period was relatively higher compared to last month due to narrow supply margin brought about by larger capacities on outages.

### DAILY SPOT




Spot exposures during weekdays averaged at 12% while it was 11.1% during weekends.




- The resulting BCQ to MQ ratio of 0 demonstrates that the entire generations were fully sold in the market 55 percent of the time.
- Roughly 13 percent of the time had a BCQ to MQ ratio of 1 which means that metered quantities were entirely allocated to serve bilateral contract obligations.
- Generators with no MQ and fully bought energy in the market to serve their bilateral contract obligations were accounted at 4 percent of the time.
- The remaining 28 percent accounted for BCQs consuming a fraction of their MQ (17 percent), declared BCQs up to twice their MQ (8 percent), and declared BCQs more than twice their MQ (3 percent).

# MONTHLY MARKET ASSESSMENT REPORT

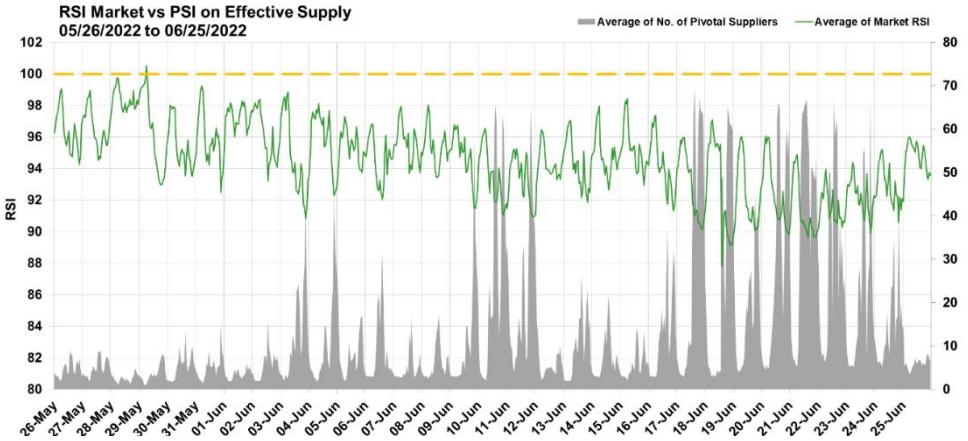
**(26 May – 25 June 2022)**

Philippine Electricity Market Corporation

MMAR-2022-06

## STRUCTURAL COMPETITION INDICES

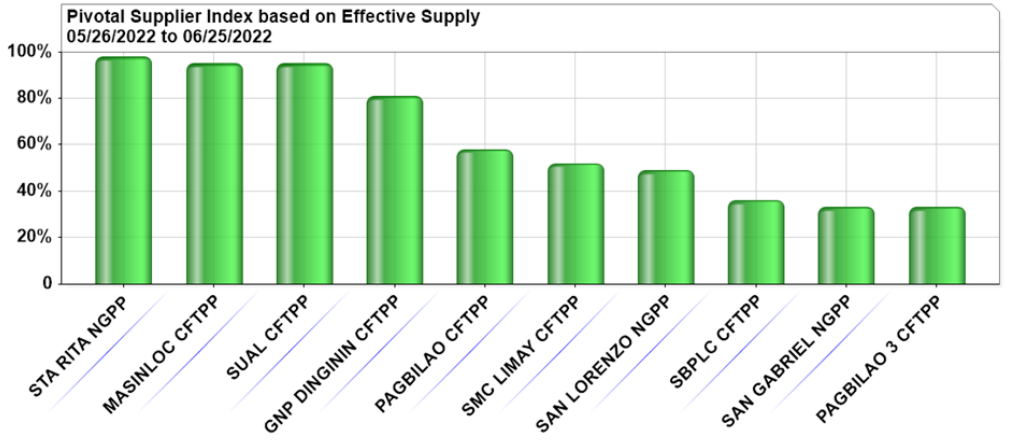
### MARKET RSI




The market Residual Supply Index (RSI) was below the 100% mark for about 99.5% of the time this month from about 87% last month.

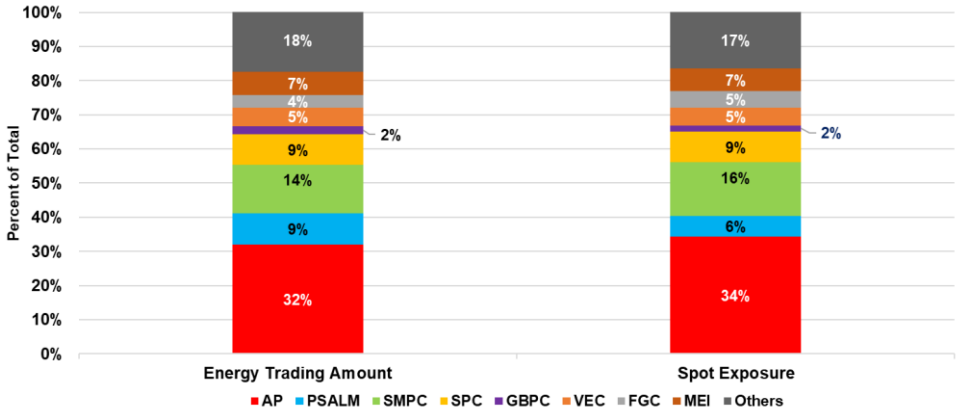
During the June 2022 billing month, the market resulted in RSIs ranging from 83.9 to 102% and averaging at 94.6%. The average market prices for intervals with RSI below 100% was PHP8,831/MWh signifying the presence of pivotal plants while those with RSIs above 100 was PHP-203/MWh when there were ample supply from the generators.

### PIVOTAL PLANTS




- A total of 156 power plants were pivotal during the period from 107 last month, with 72% or 112 plants coming from the Luzon region and 49 plants from the Visayas region.
- The noted decrease in effective supply due to high outage level translated to a low RSI and high number of pivotal suppliers per 5-min dispatch interval.

## ENERGY TRADING AMOUNT AND SPOT EXPOSURE




- The top 3 participants with highest shares in both measures comprised 55% of the total ETA and spot exposure which may indicate high level of market concentration that affects market competition.

# MONTHLY MARKET ASSESSMENT REPORT

**(26 May – 25 June 2022)**

Philippine Electricity Market Corporation

MMAR-2022-06

## 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.

# MONTHLY MARKET ASSESSMENT REPORT

**(26 April – 25 May 2022)**

Philippine Electricity Market Corporation

MMAR-2022-05

## Annex A. List of Major Plant Outages

| Plant Type | Plant/ Unit Name | Capacity (MW) | Date Out | Date In | Duration (Days) | Outage Type | Remarks |
|---|---|---|---|---|---|---|---|
| COAL | GNP Dinginin 1 | 668 | 06/09/2022 8:33 | 06/12/2022 12:47 | 3 | Forced Outage | Generator stator cooling water low flow. |
| COAL | GNP Dinginin 2 | 668 | 06/03/2022 7:50 | 06/06/2022 13:01 | 3 | Planned Outage | Cold startup test on June 6. 2022. (On Commissioning Test) |
| COAL | QPPL | 460 | 06/20/2022 23:52 | 06/23/2022 16:52 | 3 | Forced Outage | Emergency shutdown due to control valve oil leak |
| COAL | GN Power 2 | 316 | 06/18/2022 13:53 | 06/26/2022 2:45 | 8 | Forced Outage | Affected by the tripping of Hermosa - BCCPP 230kV Lines 1 and 2 |
| COAL | GN Power 1 | 316 | 06/18/2022 13:53 | 06/25/2022 2:44 | 7 | Forced Outage | Affected by the tripping of Hermosa - BCCPP 230kV Lines 1 and 2 |
| COAL | GN Power 2 | 316 | 06/16/2022 8:47 | 06/18/2022 2:59 | 2 | Forced Outage | Turbine emergency trip system actuation |
| COAL | GN Power 2 | 316 | 05/30/2022 7:29 | 06/04/2022 22:50 | 6 | Forced Outage | Emergency shutdown due to condenser tube leak. |
| COAL | GN Power 1 | 316 | 05/27/2022 16:38 | 06/09/2022 20:13 | 13 | Forced Outage | Rotor position trip |
| COAL | GN Power 2 | 316 | 05/26/2022 21:17 | 05/29/2022 3:15 | 2 | Forced Outage | Drum level high high. |
| 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 |
| COAL | Calaca 2 | 300 | 11/18/2021 7:49 | | | Forced Outage | Tripped due to generator stator ground fault |
| NATG | Ilijan B3 | 220 | 06/05/2022 0:01 | | | Forced Outage | End of Cooperation Period of Ilijan NGPP. |
| NATG | Ilijan A3 | 220 | 06/04/2022 22:42 | | | 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 A1 | 190 | 06/04/2022 22:53 | | | 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 B1 | 190 | 05/02/2022 20:08 | | | Forced Outage | Malampaya Natural Gas Supply Restriction |
| HYD | Kalayaan 4 | 180 | 06/15/2022 0:01 | 06/20/2022 19:12 | 6 | Planned Outage | Planned outage on 15--21 June 2022 |
| HYD | Kalayaan 3 | 180 | 06/08/2022 0:01 | 06/12/2022 15:31 | 5 | Maintenance Outage | Maintenance outage until 13 June 2022. |
| COAL | THVI 2 | 169 | 05/25/2022 6:36 | 06/03/2022 6:56 | 9 | Forced Outage | TRIPPED. POSSIBLE BOILER TUBE LEAK |
| COAL | THVI 2 | 169 | 05/25/2022 6:37 | | | Forced Outage | TRIPPED. POSSIBLE BOILER TUBE LEAK |
| COAL | SLPGC 1 | 150 | 06/17/2022 15:01 | 06/28/2022 23:06 | 11 | Forced Outage | Cyclone separator HP bypass left side tube leak |
| COAL | SMC 1 | 150 | 05/29/2022 9:07 | 06/09/2022 21:17 | 12 | Forced Outage | Tripped due to boiler tube leak. |
| HYD | San Roque 3 | 145 | 06/03/2022 0:01 | 06/13/2022 0:01 | 10 | Planned Outage | Plant Shutdown due to Inspection and Maintenance of the Plant and the 230kV Switchyard and protective relays(ETC 6132022 2359H). |
| HYD | San Roque 2 | 145 | 06/03/2022 0:01 | 06/13/2022 0:01 | 10 | Planned Outage | Plant Shutdown due to Inspection and Maintenance of the Plant and the 230kV Switchyard and protective relays(ETC 6132022 2359H). |
| HYD | San Roque 1 | 145 | 03/14/2022 0:01 | | | Planned Outage | Plammed outage from 14 March--09 September 2022. |
| OIL | MGTPP | 85 | 09/29/2021 16:52 | | | Forced Outage | Tripped from 14MW due to turbine bearing shaft vibration |
| GEO | Tiwi 2 | 60 | 05/24/2022 14:47 | 05/26/2022 8:47 | 2 | Forced Outage | Emergency shutdown for correction of fault indication at AVR |
| GEO | Tiwi 1 | 60 | 11/30/2021 18:32 | | | Forced Outage | Steam supply diverted to Unit 2. |
| GEO | Makban 6 | 55 | 04/11/2013 22:44 | | | Deactivated Shutdown | Conducted gas compressor test |
| HYD | Angat M 4 | 50 | 02/14/2022 0:01 | | | Planned Outage | Planned Outage |
| HYD | Angat M 3 | 50 | 11/02/2021 8:15 | | | Forced Outage | Draw-out of Main Unit 3 generator breaker. |
| HYD | Ambuklao 2 | 35 | 06/21/2022 8:01 | 06/26/2022 19:12 | 5 | Maintenance Outage | Installation of cooling fan at unit transformer and commissioning for the uprating of unit. |
| HYD | Ambuklao 1 | 35 | 06/21/2022 8:01 | 06/26/2022 18:01 | 5 | Maintenance Outage | Installation of cooling fan at unit transformer and commissioning for the uprating of unit. |
| HYD | Ambuklao 3 | 35 | 05/28/2022 8:01 | 06/02/2022 20:18 | 6 | Planned Outage | APM. |
| HYD | Ambuklao 2 | 35 | 05/17/2022 0:01 | 05/27/2022 11:35 | 10 | Planned Outage | Planned Outage on May 17-27. 2022. |
| HYD | Ambuklao 1 | 35 | 05/17/2022 0:01 | 05/27/2022 12:01 | 11 | Planned Outage | Planned Outage on May 17-27. 2022. |
| GEO | Upper Mahiao 3 | 32 | 07/22/2020 17:01 | 06/15/2022 22:17 | 693 | Maintenance Outage | Trip with Loss of Excitation. Economic 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 |
| HYD | Masiway | 12 | 05/17/2022 9:47 | 05/26/2022 18:30 | 9 | Planned Outage | Annual preventive maintenance |
| BIOF | SCBE | 7.4 | 05/06/2022 6:45 | | | Forced Outage | Offline due to internal problem |
| OIL | TPVI 3 | 6.8 | 06/21/2022 9:24 | 06/30/2022 13:37 | 9 | Forced Outage | EMERGENCY CUT-OUT DUE TO STEAM LEAK AT STEAM COLLECTOR |
| OIL | TPVI 4 | 6.8 | 06/16/2022 14:19 | 06/22/2022 12:01 | 6 | Forced Outage | EXHAUST GAS LEAK |
| OIL | TPVI 6 | 6.8 | 06/13/2022 16:48 | 06/15/2022 14:56 | 2 | Forced Outage | EMERGENCY CUT-OUT DUE TO LOW EXHAUST GAS TEMPERATURE OF CYLINDER A3 |
| OIL | PB101 Unit 1 | 6 | 05/26/2022 13:52 | 06/03/2022 19:29 | 8 | Forced Outage | Due to internal trouble |

*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*