

## PEMC MARKET ASSESSMENT HIGHLIGHTS

- The average demand and the reserve schedule, recorded at 12,602 MW during the week of 29 May -04 Jun 2023, was lower than the previous week at 12,621 MW and higher than the same week last year at 12,526 MW.
- The average effective supply during the week was 13,397 MW, higher than the 13,193 MW of the previous week and higher than the 13,090 MW during the same week last year. Ramping limitations were considered in the calculation of the effective supply.
  - The capacity on outage averaged at 2,645 MW, lower than last week's 2,736 MW. About 31% of the 2,645 MW involved Natural Gas plants, while in terms of category, about 73% were Forced Outages.
- As a result, an average supply margin of 794 MW was observed during the week, which is higher by about 39% relative to the previous week and higher by about 41% in comparison with the same week last year. The supply deficit reached 0.17 MW on 29 May 2023 20:15. The average supply margin was 704.63 MW at peak intervals and 864.97 MW at off-peak intervals.
- Correspondingly, average GWAP was recorded at PHP 6,524/MWh from PHP 8,789/MWh last week. This is lower than the PHP7,863/MWh during the same week last year.
  - The secondary price cap was imposed during 166 intervals out of the 2,016 intervals of the week (about 8% of the time).
- The top 5 participant groups accounted for about 78% of the offered capacity. The Herfindahl-Hirschman Index (HHI) by participant group indicated partially concentrated and moderately concentrated market based on the offered and registered capacities respectively.
- The top 5 pivotal plants during the week were –
  1. GNP DINGININ CFTPP (about 99.21% of the time)
  2. SUAL CFTPP (about 65.58% of the time)
  3. MASINLOC CFTPP (about 58.43% of the time)
  4. STA RITA NGPP (about 56.89% of the time)
  5. PAGBILAO CFTPP (about 27.58% of the time)
- Based on the MMS Solution, the top 5 congested equipment during the week were –
  1. 138kV Maasin\_Ubay (about 53.1% of the time)
  2. 69kV Bacolod\_Barotac Viejo (about 16.3% of the time)
  3. 138kV Bacolod\_Barotac Viejo (about 5.2% of the time)
  4. Calaca\_Transformer 2 (about 1.0% of the time)
  5. Bakun\_Transformer 1 (about 0.94% of the time)
- Natural gas plants recorded higher offered capacity following the synchronization of Ilijan blocks A and B which resulted in the lower offer prices for the same offered capacity of the previous week. On the other hand, hydro plants recorded lower offered capacity following the maintenance outage of San Roque Units 1 to 3 as well as lower offer prices during the week. Furthermore, battery recorded higher offer capacity and lower offered price. Lastly, no significant change in other plant's offer pattern.

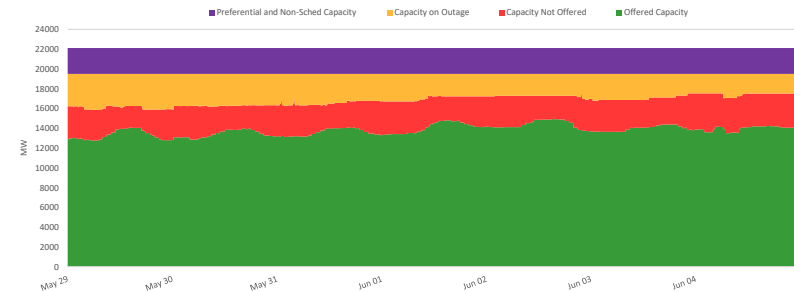
### IEMOP MARKET SYSTEMS ADVISORY

- No IT-related issue was advised in IEMOP's market systems from 29 May -04 Jun 2023.

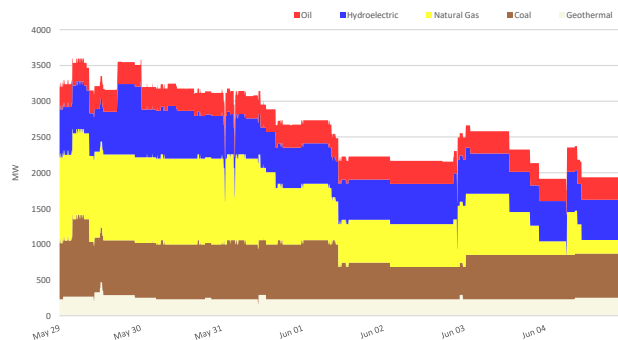
## SUMMARY (PRICE, SUPPLY, DEMAND AND RESERVE SCHEDULE)

| Particulars                    |     | 29 May -04 Jun 2023 | Previous Week (22 - 28 May 2023 ) | Same Week, Previous Year (30 May -05 Jun 2022) | Percent Change From |                      |
|--------------------------------|-----|---------------------|-----------------------------------|--|---------------------|----------------------|
|                                |     |                     |                                   |  | Previous Week       | Same Week, Prev Year |
| GWAP (PHP/MWh)                 | max | 40,685.41           | 49,164.16                         | 31,830.16                                      | -17.25%             | 27.82%               |
|                                | min | -979.43             | -9,861.73                         | -0.98  | 90.07%              | -99%                 |
|                                | ave | 6,524.34            | 8,789.10                          | 7,862.72                                       | -25.77%             | -17.02%              |
| Effective Supply (MW)          | max | 15,306.91           | 15,507.40                         | 15,117.04                                      | -1.29%              | 1.26%                |
|                                | min | 11,013.36           | 10,900.12                         | 10,759.65                                      | 1.04%               | 2.36%                |
|                                | ave | 13,396.74           | 13,192.59                         | 13,090.35                                      | 1.55%               | 2.34%                |
| System Demand (MW)             | max | 14,263.71           | 14,691.80                         | 13,540.38                                      | -2.91%              | 5.34%                |
|                                | min | 9,403.77            | 9,613.93                          | 9,203.65                                       | -2.19%              | 2.17%                |
|                                | ave | 12,025.61           | 12,133.06                         | 11,372.93                                      | -0.89%              | 5.74%                |
| Demand + Reserve Schedule (MW) | max | 15,075.30           | 15,419.43                         | 14,805.78                                      | -2.23%              | 1.82%                |
|                                | min | 9,910.05            | 10,111.18                         | 10,154.43                                      | -1.99%              | -2.41%               |
|                                | ave | 12,602.39           | 12,620.88                         | 12,525.70                                      | -0.15%              | 0.61%                |
| Supply Margin (MW)             | max | 1,286.03            | 1,231.31                          | 987.53   | 4.44%               | 30.23%               |
|                                | min | -0.17               | -214.66                           | 1.36   | 99.92%              | -112.45%             |
|                                | ave | 794.34              | 571.70                            | 564.65   | 38.94%              | 40.68%               |

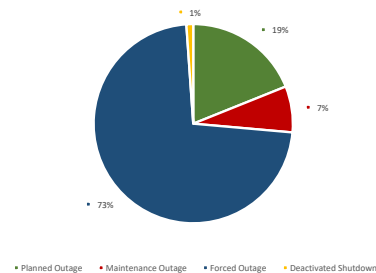
## CAPACITY PROFILE



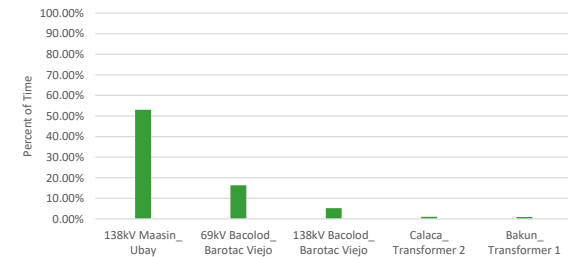
## CAPACITY ON OUTAGE BY PLANT TYPE



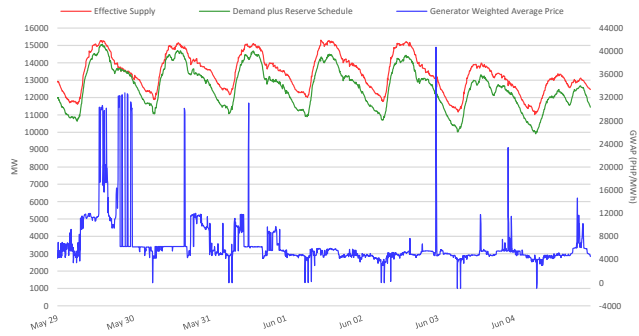
## CAPACITY ON OUTAGE BY OUTAGE CATEGORY



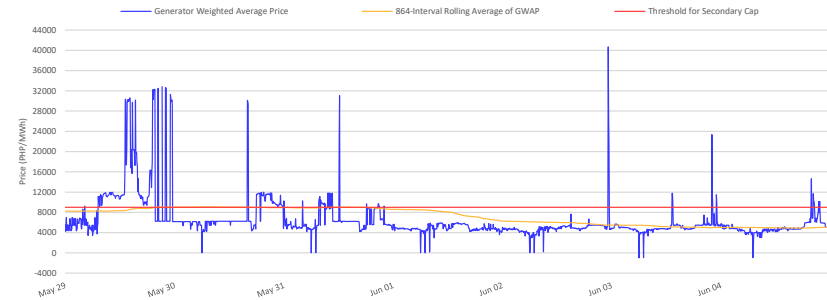
## RTD CONGESTION



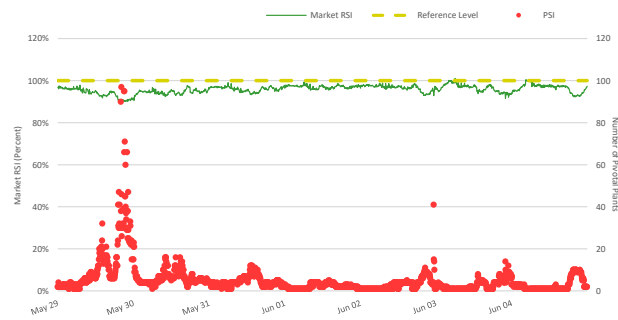
## SUPPLY, DEMAND AND PRICE



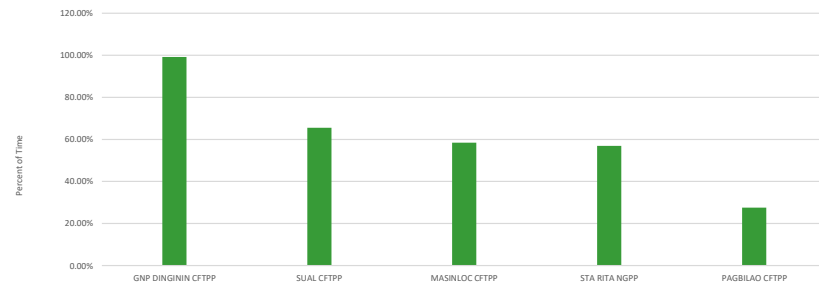
## GENERATOR WEIGHTED AVERAGE PRICE



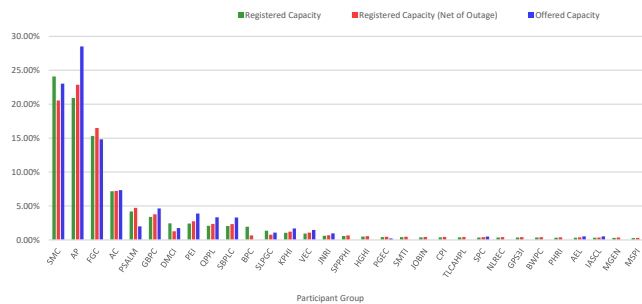
## MARKET RSI VS PIVOTAL PLANTS



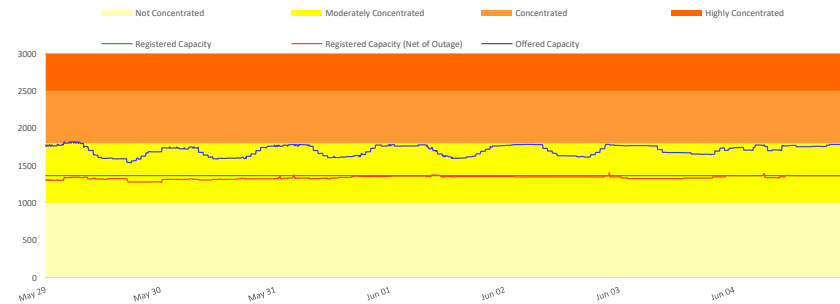
## PSI



## MARKET SHARE



## HERFINDAHL-HIRSCHMAN INDEX

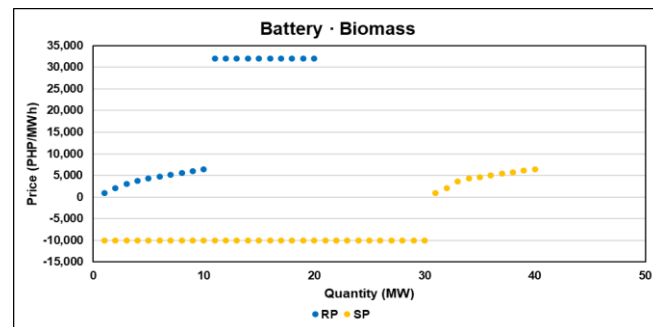
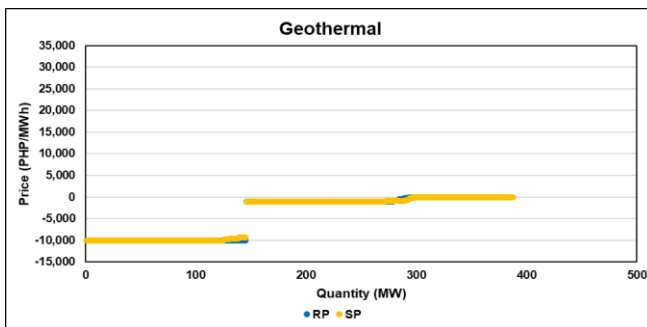
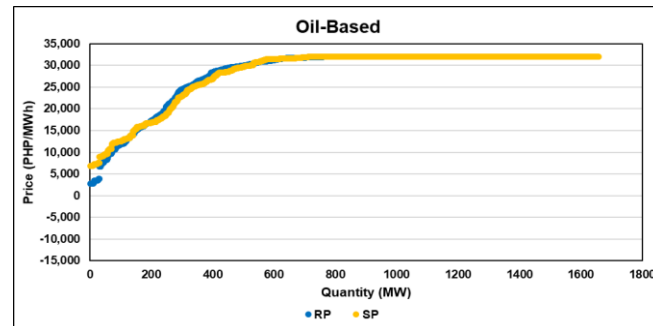
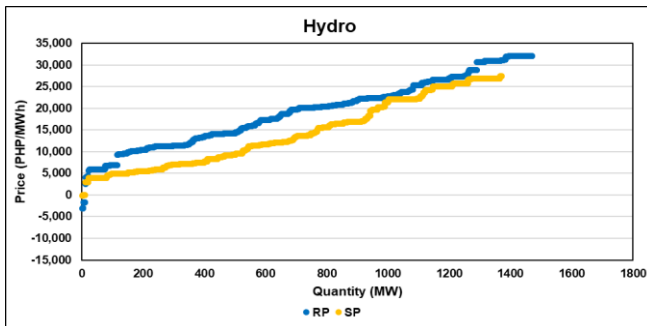
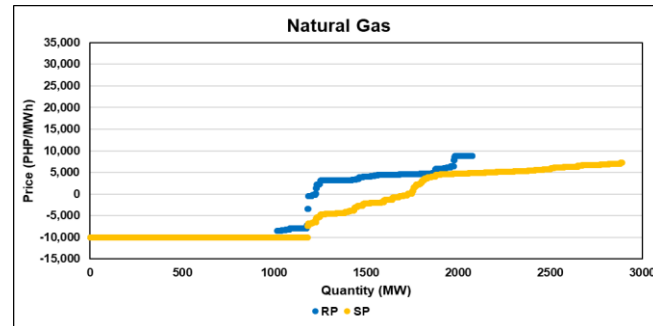
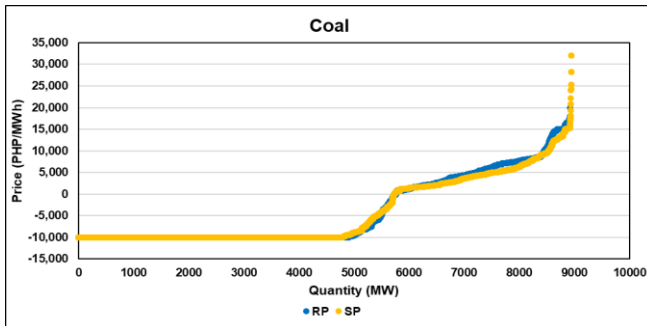


## OFFER PATTERN ANALYSIS

### Legend

RP: Reference Offer Price – the week of 22-28 May 2023 was used as a control for the comparison with the subject price

SP: Subject Offer Price – the week of 29 May-04 Jun 2023



**GLOSSARY OF TERMS**

**EFFECTIVE SUPPLY** - The effective supply is equal to the offered capacity of all scheduled generator resources, nominated loading level of non-scheduled generating units and projected output of preferential dispatch generating units, adjusted for any security limit provided by the System Operator and other constraints considered during MMS simulation such as generator offered ramp rates. Scheduled output of plants on testing and commissioning through the imposition of security limit by SO and scheduled output of Malaya plant when it is called to run as Must Run Unit (MRU) are likewise accounted for in the effective supply.

**MARKET RESIDUAL SUPPLY INDEX (Market RSI)** - The RSI is a dynamic continuous index measured as ratio of the available generation without a generator to the total generation required to supply the demand. The RSI is measured for each generator. The greater the RSI of a generator, the less will be its potential ability to exercise market power and manipulate prices, as there will be sufficient capacity from the other generators. In contrary, the lower the RSI, the greater the market power of a generator (and its potential benefit of exercising market power), as the market is strongly dependent on its availability to be able to fully supply the demand. In particular, a RSI greater than 100% for a generator means that the remaining generators can cover the demand, and in principle that generator cannot manipulate market price. On the other hand, a RSI less than 100% means that the generator is pivotal in supplying the demand.

The RSI for the whole market (Market RSI) is measured as the lowest RSI among all the generators in the market. A Market RSI less than 100% indicates the presence of pivotal generator/s.

**MARKET SHARE** - The fraction of the total capacity or energy that a company or related group owns or controls in the market.

**MAJOR PARTICIPANT GROUP** - The grouping of generators by ownership or control.

**PIVOTAL SUPPLIER INDEX (PSI)** - The pivotal supplier index is a binary variable (1 for pivotal and 0 for not pivotal) for each generator. The index identifies whether a generator is pivotal in supplying the demand. The PSI is calculated as the percentage of time that a generator is pivotal in a period (i.e. monthly).

**HERFINDAHL-HIRSCHMAN INDEX (HHI)** - is a commonly accepted measure of market concentration that takes into account the relative size and distribution of participants in the market. The HHI is a number between 0 and 10,000, which is calculated as the sum of squares of the participant's market share. The HHI approaches zero when the market has very large number of participants with each having a relatively small market share. In contrary, the HHI increases as the number of participants in the market decreases, and the disparity in the market shares among the participants increases. The following are the widely used HHI screening numbers: (1) less than 1,000 - not concentrated; (2) 1,000 to 1,800 - moderately concentrated; (3) greater than 1,800 - concentrated; and (4) greater than 2,500 - highly concentrated.

**REGISTERED CAPACITY** - The capacity registered by a generator with WESM.

**REGISTERED CAPACITY (NET OF OUTAGE)** - The capacity registered by a generator with WESM less capacity on outage.

**OFFERED CAPACITY** - The offer to supply electricity submitted by a generator.

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