

**PEMC MARKET ASSESSMENT HIGHLIGHTS**

- The average demand and the reserve schedule, recorded at 12,549 MW during the week of 01 - 07 May 2023, was lower than the previous week at 12,556 and lower than the same week last year at 12,590 MW.
- The average effective supply during the week was 13,161 MW, lower than the 13,218 MW of the previous week and lower than the 13,361 MW during the same week last year. Ramping limitations were considered in the calculation of the effective supply.
  - The capacity on outage averaged at 2,263 MW, higher than last week's 1,985 MW. About 30% of the 2,263 MW involved Hydroelectric plants, while in terms of category, about 61% were Forced Outages.
- As a result, an average supply margin of 612 MW was observed during the week, which is lower by about 7.596% relative to the previous week and lower by about 19.966% in comparison with the same week last year. The supply deficit reached 86.77 MW on 07 May 2023 22:00 . The average supply margin was 565.45 MW at peak intervals and 640.64 MW at off-peak intervals.
- Correspondingly, average GWAP was recorded at PHP 8,105/MWh from PHP 8,461/MWh last week. This is higher than the PHP5,427/MWh during the same week last year.
  - The secondary price cap was imposed during 317 intervals out of the 2,016 intervals of the week (about 16% 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 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 99.55% of the time)
  2. MASINLOC CFTPP (about 93.35% of the time)
  3. SUAL CFTPP (about 84.47% of the time)
  4. STA RITA NGPP (about 78.22% of the time)
  5. PAGBILAO CFTPP (about 44.49% of the time)
- Based on the MMS Solution, the top 5 congested equipment during the week were –
  1. 138kV Maasin\_Ubay (about 36.27% of the time)
  2. 230kV Mexico-Hermosa Line2 (about 31.4% of the time)
  3. 230kV Mexico-Hermosa Line1 (about 30.2% of the time)
  4. 230kV Bauang-BPPC Line1 (about 5.3% of the time)
  5. 230 kV Hermosa-Malolos Line1 (about 2.9% of the time)

Coal plants recorded slightly lower offered capacity following the outage of Calaca Unit 1. The Offer Pattern Analysis (OPA) chart for Geothermal plants showed a significant decrease in offered capacity indicative of the reclassification of Bacman and Visayas Geothermal plants from scheduled to priority dispatch.

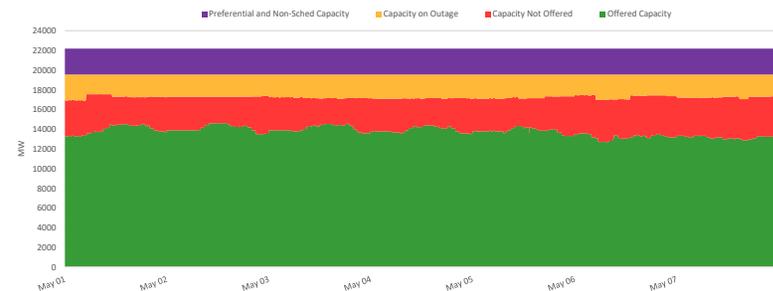
**IEMOP MARKET SYSTEMS ADVISORY**

- No IT-related issue was advised in IEMOP's market systems from 01 - 07 May 2023.

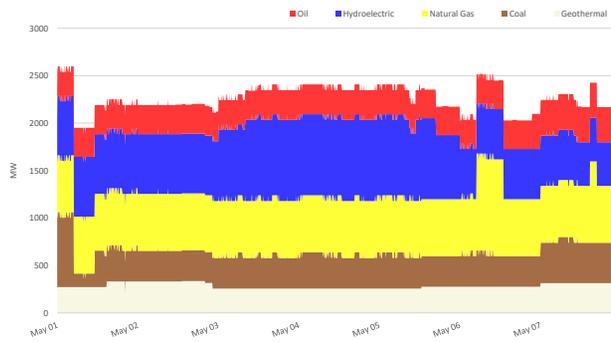
**SUMMARY (PRICE, SUPPLY, DEMAND AND RESERVE SCHEDULE)**

Particulars	01 - 07 May 2023	Previous Week (24 - 30 Apr 2023 )	Same Week, Previous Year (02 - 08 May 2022)	Percent Change From		
				Previous Week	Same Week, Prev Year	
GWAP (PHP/MWh)	max	37,032.75	35,133.12	22,000.00	5.41%	68.33%
	min	-9,857.60	-977.36	-9,310.26	-908.59%	-5.88%
	ave	8,105.17	8,461.00	5,427.29	-4.21%	49.34%
Effective Supply (MW)	max	15,345.75	15,468.74	15,800.96	-0.80%	-2.88%
	min	10,468.62	10,799.10	10,945.95	-3.06%	-4.36%
	ave	13,160.97	13,217.88	13,361.36	-0.43%	-1.50%
System Demand (MW)	max	14,518.42	14,407.12	13,903.35	0.77%	4.42%
	min	8,980.59	9,531.67	9,006.08	-5.78%	-0.28%
	ave	12,066.04	12,078.25	11,553.52	-0.10%	4.44%
Demand + Reserve Schedule (MW)	max	15,013.82	14,798.96	15,129.80	1.45%	-0.77%
	min	9,469.30	10,020.25	9,895.08	-5.50%	-4.30%
	ave	12,548.97	12,555.57	12,589.80	-0.05%	-0.32%
Supply Margin (MW)	max	1,194.32	1,141.26	1,184.77	4.65%	0.81%
	min	-86.77	-113.61	0.00	23.62%	-
	ave	612.00	662.30	764.67	-7.60%	-19.97%

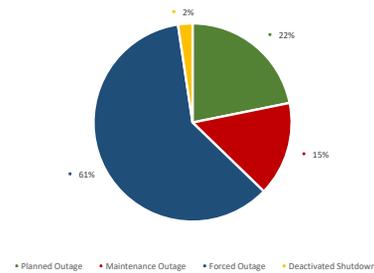
**CAPACITY PROFILE**



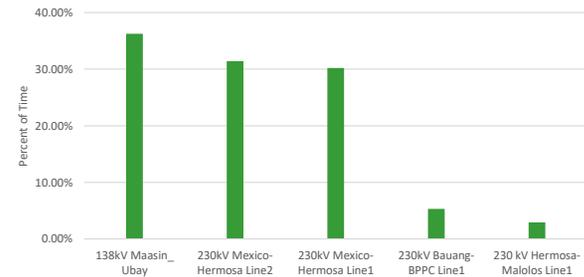
**CAPACITY ON OUTAGE BY PLANT TYPE**



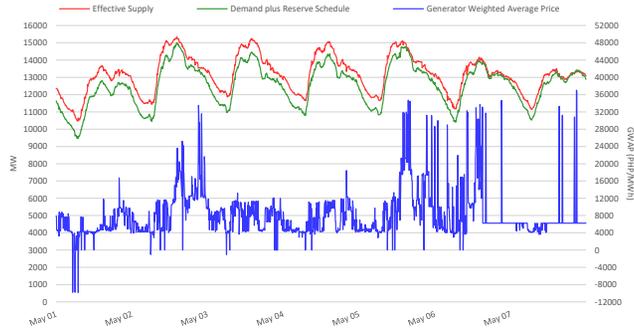
**CAPACITY ON OUTAGE BY OUTAGE CATEGORY**



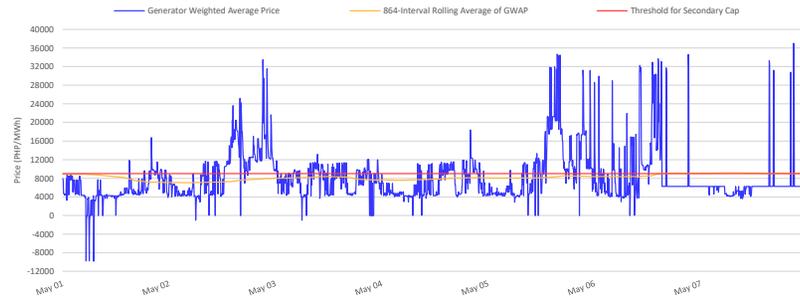
**RTD CONGESTION**



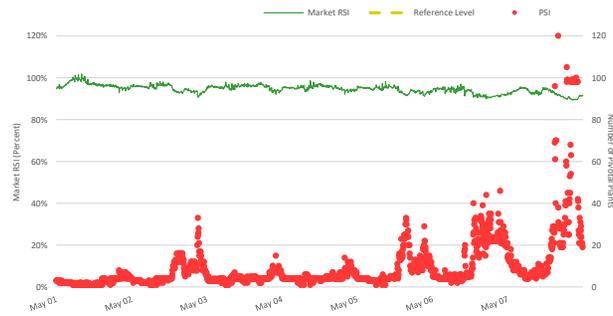
**SUPPLY, DEMAND AND PRICE**



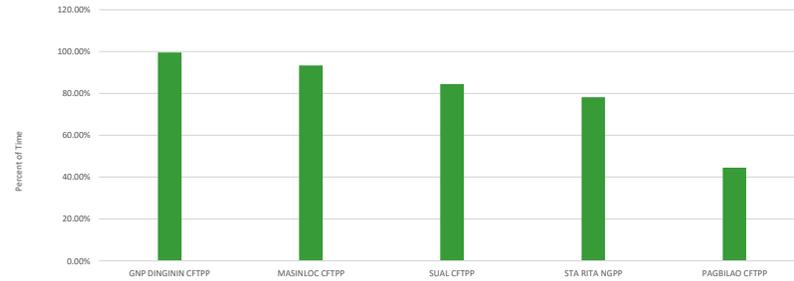
**GENERATOR WEIGHTED AVERAGE PRICE**



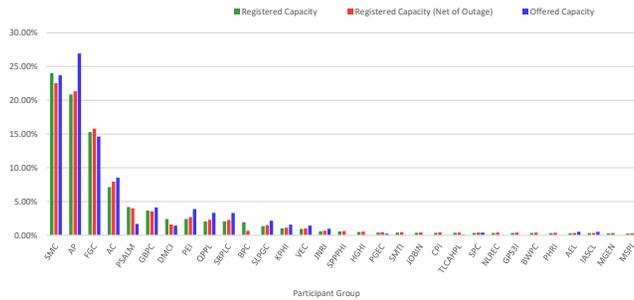
**MARKET RSI VS PIVOTAL PLANTS**



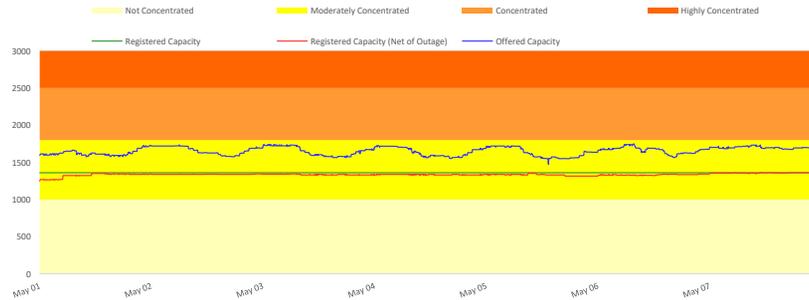
**PSI**



**MARKET SHARE**



**HERFINDAHL-HIRSCHMAN INDEX**

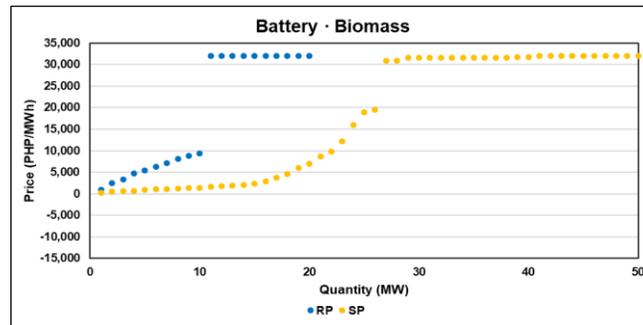
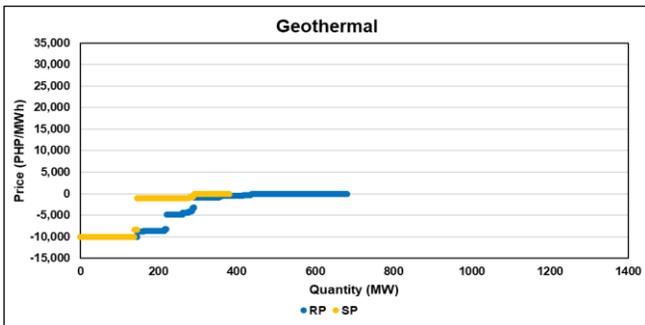
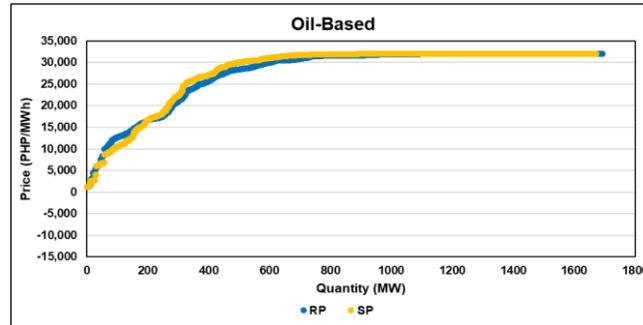
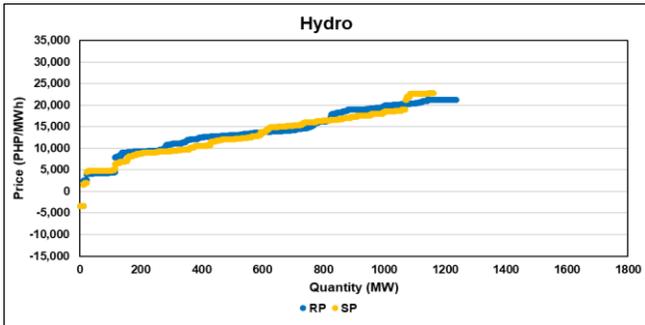
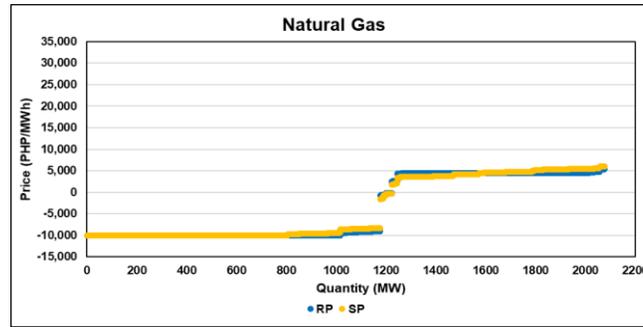
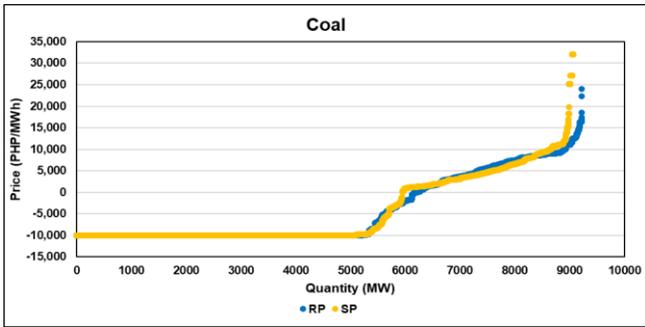


**OFFER PATTERN ANALYSIS**

**Legend**

RP: Reference Offer Price – the week of 24-30 Apr 2023 was used as a control for the comparison with the subject price

SP: Subject Offer Price – the week of 01-07 May 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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