

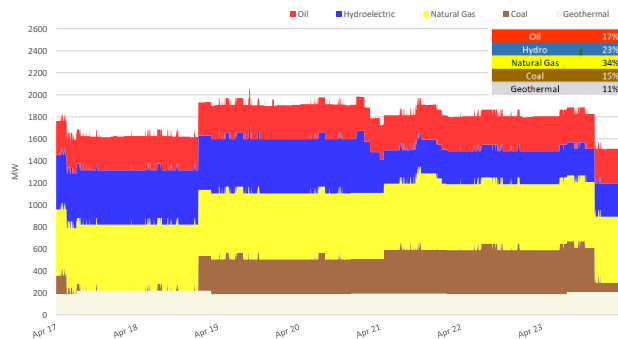
PEMC MARKET ASSESSMENT HIGHLIGHTS

- The average demand and the reserve schedule, recorded at 12,765 MW during the week of 17 - 23 Apr 2023, was higher than the previous week at 11,635 and higher than the same week last year at 11,918 MW.
- The average effective supply during the week was 13,326 MW, higher than the 12,406 MW of the previous week and higher than the 12,488 MW during the same week last year. Ramping limitations were considered in the calculation of the effective supply.
 - The capacity on outage averaged at 1,795 MW, lower than last week's 2,106 MW. About 34% of the 1,795 MW involved Natural Gas plants, while in terms of category, about 71% were Forced Outages.
- As a result, an average supply margin of 561 MW was observed during the week, which is lower by about 27.298% relative to the previous week and lower by about 1.393% in comparison with the same week last year. The supply deficit reached 8.5 MW on 20 April 2023 22:05. The average supply margin was 494.04 MW at peak intervals and 613.18 MW at off-peak intervals.
- Correspondingly, average GWAP was recorded at PHP 8,628/MWh from PHP 6,985/MWh last week. This is higher than the PHP8,345/MWh during the same week last year.
 - The secondary price cap was imposed during 428 intervals out of the 2,016 intervals of the week (about 21% of the time).
- The top 5 participant groups accounted for about 82% 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 –
 - GNP DINGININ CFTPP (about 100.% of the time)
 - MASINLOC CFTPP (about 96.92% of the time)
 - SUAL CFTPP (about 95.49% of the time)
 - STA RITA NGPP (about 84.97% of the time)
 - PAGBILAO CFTPP (about 60.27% of the time)
- Based on the MMS Solution, the top 5 congested equipment during the week were –
 - 138kV Maasin_ Ubay (about 43.3% of the time)
 - 230kV Mexico-Hermosa Line2 (about 14.2% of the time)
 - 230kV Mexico-Hermosa Line1 (about 10.5% of the time)
 - 138kV Samboan-Amlan Line1 (about 3.4% of the time)
 - 230kV Bauang-BPPC Line1 (about 3.1% of the time)
- Coal plants recorded higher offered capacity following the synchronization of Calaca Unit 2. Meanwhile, Natural gas plants offered slightly lower prices while hydro offered higher prices at the end of their offer curves.

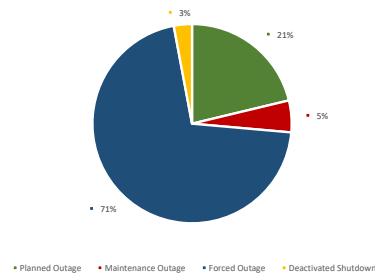
IEMOP MARKET SYSTEMS ADVISORY

- No IT-related issue was advised in IEMOP's market systems from 17 - 23 Apr 2023.

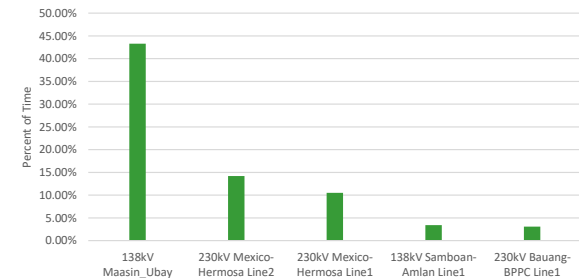
CAPACITY ON OUTAGE BY PLANT TYPE



CAPACITY ON OUTAGE BY OUTAGE CATEGORY



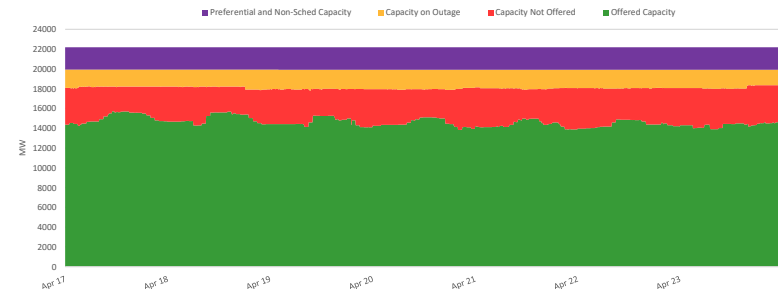
RTD CONGESTION



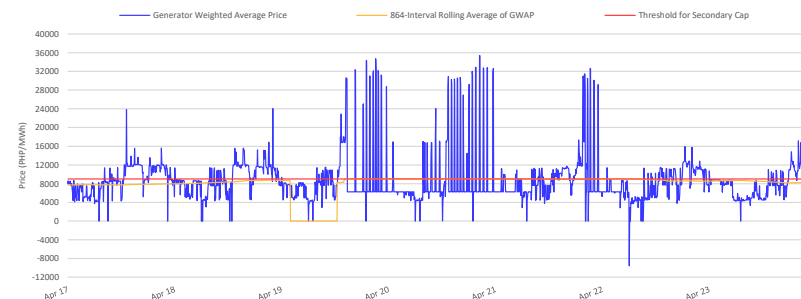
SUMMARY (PRICE, SUPPLY, DEMAND AND RESERVE SCHEDULE)

Particulars		17 - 23 Apr 2023	Previous Week (10 - 16 Apr 2023)	Same Week, Previous Year (18 - 24 Apr 2022)	Percent Change From	
					Previous Week	Same Week, Prev Year
GWAP (PHP/MWh)	max	35,406.06	24,825.30	33,086.49	42.62%	7.01%
	min	-9,587.81	-9,723.08	-999.07	1.39%	-859.67%
	ave	8,627.98	6,984.75	8,345.10	23.53%	3.39%
Effective Supply (MW)	max	15,545.56	14,595.84	14,486.13	6.51%	7.31%
	min	10,857.29	9,722.59	9,607.10	11.67%	13.01%
	ave	13,325.83	12,406.27	12,487.90	7.41%	6.71%
System Demand (MW)	max	14,547.96	13,258.36	13,457.60	9.73%	8.10%
	min	9,675.49	7,994.98	8,134.28	21.02%	18.95%
	ave	12,185.45	10,997.27	11,073.24	10.80%	10.04%
Demand + Reserve Schedule (MW)	max	15,213.96	13,997.25	14,246.92	8.69%	6.79%
	min	10,122.49	8,559.09	8,863.78	18.27%	14.20%
	ave	12,765.13	11,635.04	11,918.15	9.71%	7.11%
Supply Margin (MW)	max	1,014.87	1,306.71	1,033.11	-22.33%	-1.77%
	min	-8.50	290.32	-155.26	-102.93%	94.52%
	ave	560.70	771.23	568.62	-27.30%	-1.39%

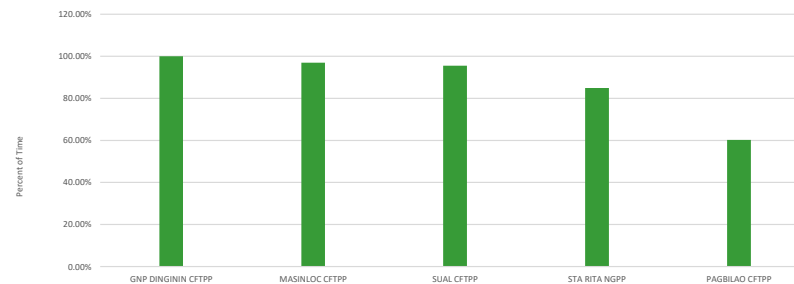
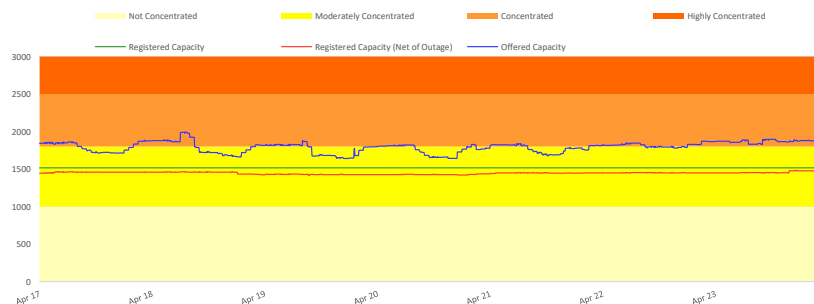
CAPACITY PROFILE



GENERATOR WEIGHTED AVERAGE PRICE



PSI

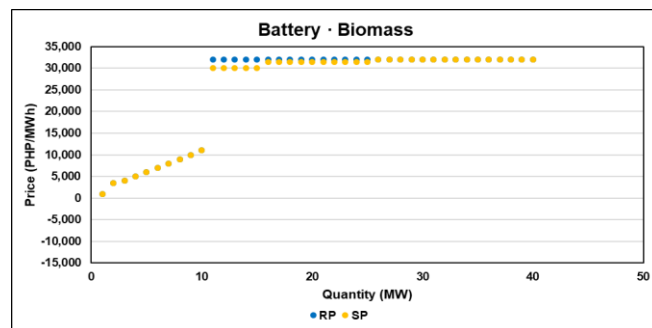
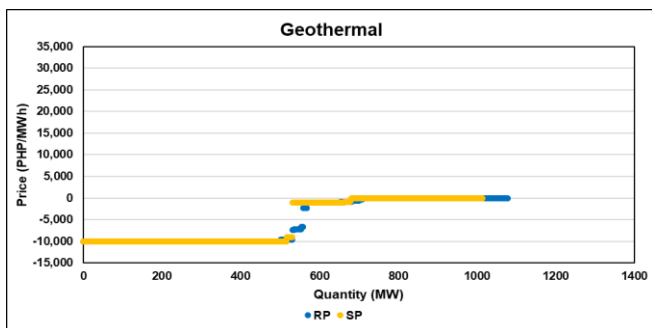
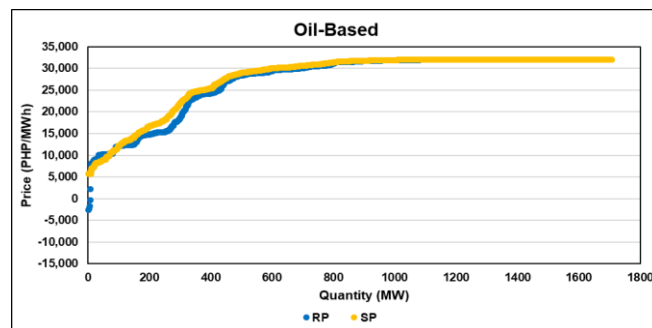
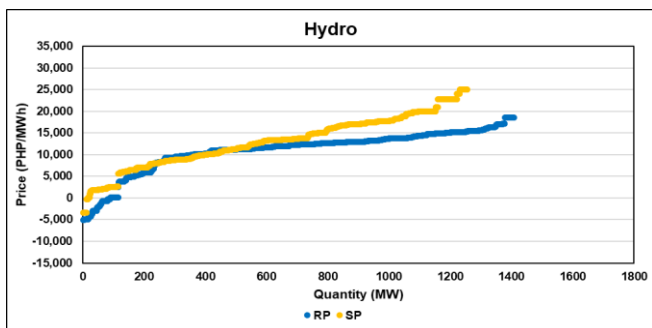
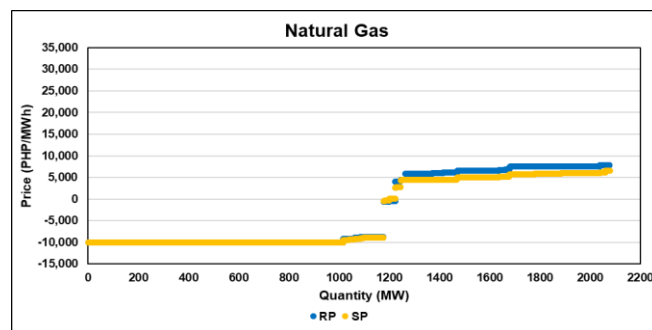
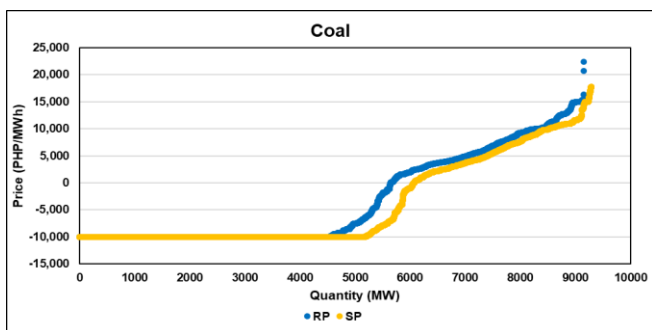
**HERFINDAHL-HIRSCHMAN INDEX**

OFFER PATTERN ANALYSIS

Legend

RP: Reference Offer Price – the week of 10-16 Apr 2023 was used as a control for the comparison with the subject price

SP: Subject Offer Price – the week of 17-23 Apr 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.

DISCLAIMER: The information contained in this document is based on the available electricity spot market data. The same information is subject to change as updated figures come in. As such, the PEMC does not make any representation or warranty as to the completeness of this information. The PEMC likewise accepts no responsibility or liability whatsoever for any loss or cost incurred by a reader arising from, or in relation to, any conclusion or assumption derived from the information found herein.