

PEMC MARKET ASSESSMENT HIGHLIGHTS

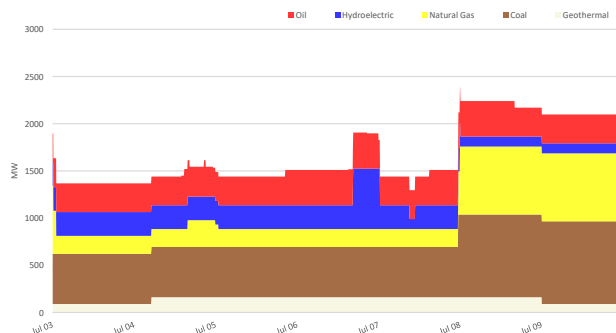
- The average demand and the reserve schedule, recorded at 12,718 MW during the week of 03 - 09 Jul 2023, was higher than the previous week at 11,907 MW and higher than the same week last year at 11,861 MW.
- The average effective supply during the week was 13,470 MW, higher than the 12,845 MW of the previous week and higher than the 12,273 MW during the same week last year. Ramping limitations were considered in the calculation of the effective supply.
 - The capacity on outage averaged 1,676 MW, higher than last week's 1,424 MW. About 38% of the 1,676 MW involved Coal plants, while in terms of category, about 50% were Forced Outages.
- As a result, an average supply margin of 751 MW was observed during the week, which is lower by about 19.885% relative to the previous week and higher by about 82% in comparison with the same week last year. The minimum supply margin based on MMS solution was 18.67 MW on 08 July 2023 22:10. The average supply margin was 676.87 MW at peak intervals and 809.63 MW at off-peak intervals.
- Correspondingly, average GWAP was recorded at PHP 7,187/MWh from PHP 4,175/MWh last week. This is lower than the PHP8,672/MWh during the same week last year.
 - No secondary price cap was imposed for this week
- The top 5 participant groups accounted for about 77% of the offered capacity. The Herfindahl-Hirschman Index (HHI) by participant group indicated moderately concentrated market based on the offered and registered capacities.
- The top 5 pivotal plants during the week were –
 - GNP DINGININ CFTPP (about 99.75% of the time)
 - SUAL CFTPP (about 73.21% of the time)
 - MASINLOC CFTPP (about 61.95% of the time)
 - STA RITA NGPP (about 58.88% of the time)
 - MARIVELES CFTPP (about 35.22% of the time)
- Based on the MMS Solution, the top 5 congested equipment during the week were –
 - 138kV Maasin_Ubay (about 49.8% of the time)
 - 230kV Mexico-Hermosa Line1 (0.89% of the time)
 - 230kV Mexico-Hermosa Line2 (0.64% of the time)
 - Kabankalan_Transformer 1 (0.4% of the time)
 - 230kV Bauang-BPPC Line1 (0.05% of the time)

Coal plants recorded lower offered capacity following the planned outage of Pagbilao CFTPP Unit 1. Hydro plants recorded slightly higher offer prices while oil-based plants recorded slightly lower offer prices, both at the start of the offer pattern curve. Lastly, battery recorded higher offered capacity while geothermal and natural gas plants have no significant changes in their offer pattern.

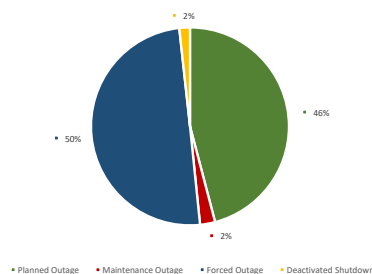
IEMOP MARKET SYSTEMS ADVISORY

- No IT-related issue was advised in IEMOP's market systems from 03 - 09 Jul 2023.

CAPACITY ON OUTAGE BY PLANT TYPE



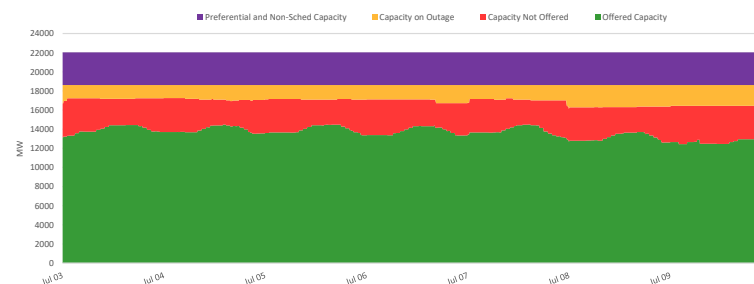
CAPACITY ON OUTAGE BY OUTAGE CATEGORY



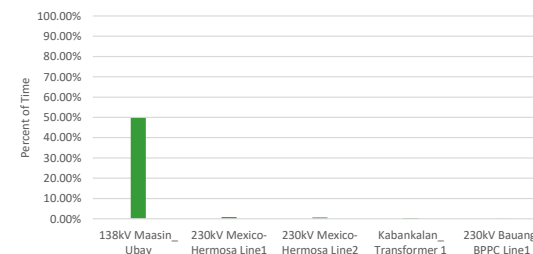
SUMMARY (PRICE, SUPPLY, DEMAND AND RESERVE SCHEDULE)

Particulars		03 - 09 Jul 2023	Previous Week (26 Jun - 02 Jul 2023)	Same Week, Previous Year (04 - 10 Jul 2022)	Percent Change From	
					Previous Week	Same Week, Prev Year
GWAP (PHP/MWh)	max	33,538.002	19,105.913	33,407.251	75.537%	0.391%
	min	-1.023	-1,014.770	-1,019.312	99.899%	99.900%
	ave	7,186.591	4,174.799	8,671.950	72.142%	-17.128%
Effective Supply (MW)	max	15,701.458	14,937.990	14,333.716	5.111%	9.542%
	min	10,980.572	10,864.905	9,999.848	1.065%	9.807%
	ave	13,469.573	12,844.621	12,272.552	4.865%	9.754%
System Demand (MW)	max	14,821.870	13,478.280	13,234.330	9.969%	11.996%
	min	9,400.580	9,356.860	8,563.140	0.467%	9.780%
	ave	12,263.973	11,433.403	10,860.058	7.264%	12.927%
Demand + Reserve Schedule (MW)	max	15,435.664	14,174.340	14,323.874	8.899%	7.762%
	min	9,744.180	9,696.260	9,380.180	0.494%	3.881%
	ave	12,718.420	11,907.032	11,860.949	6.814%	7.229%
Supply Margin (MW)	max	1,361.975	1,421.466	871.664	-4.185%	56.250%
	min	18.668	415.714	-29.087	-95.509%	164.180%
	ave	751.154	937.590	411.603	-19.885%	82.495%

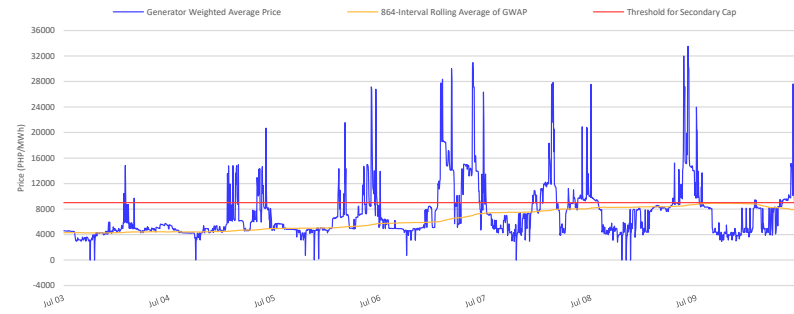
CAPACITY PROFILE



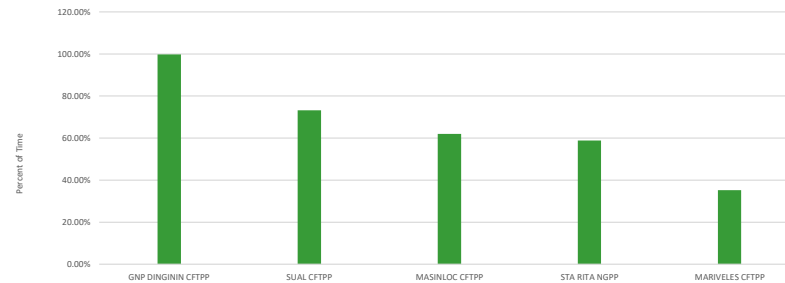
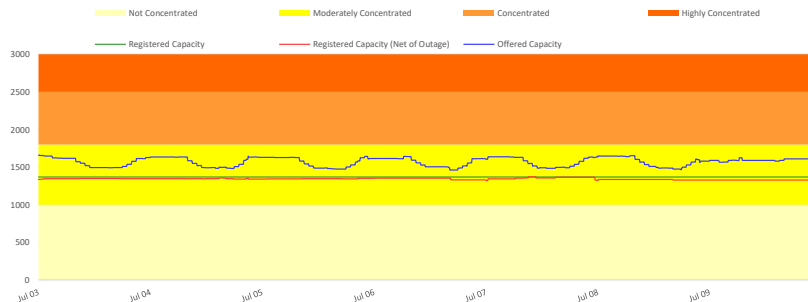
RTD CONGESTION



GENERATOR WEIGHTED AVERAGE PRICE



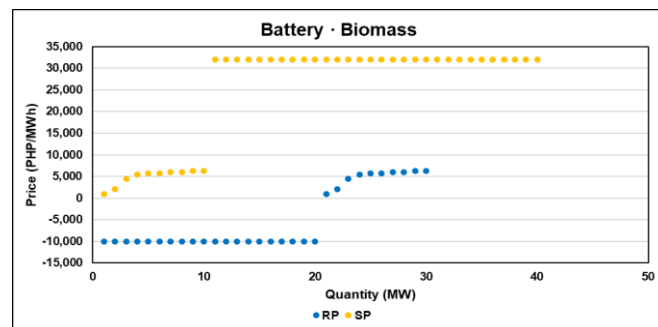
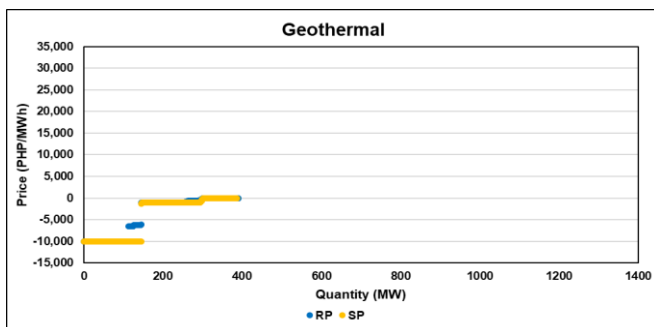
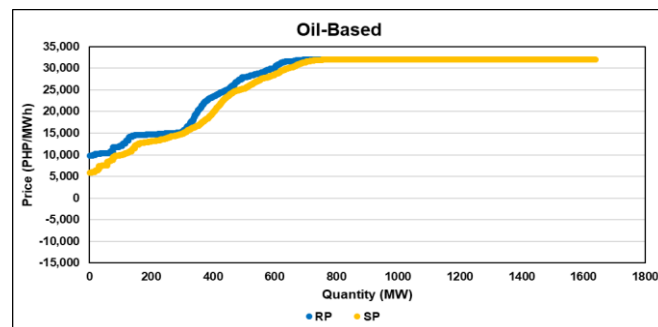
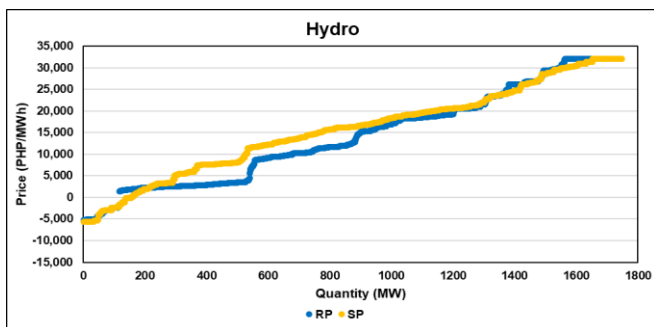
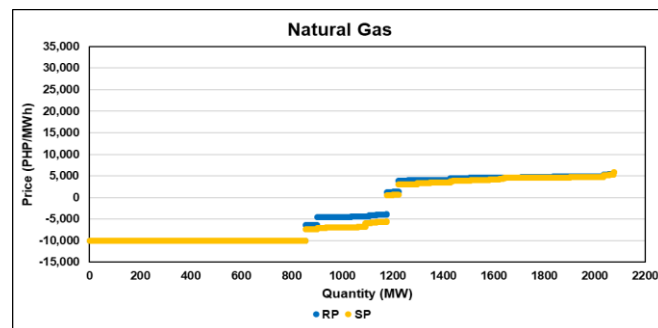
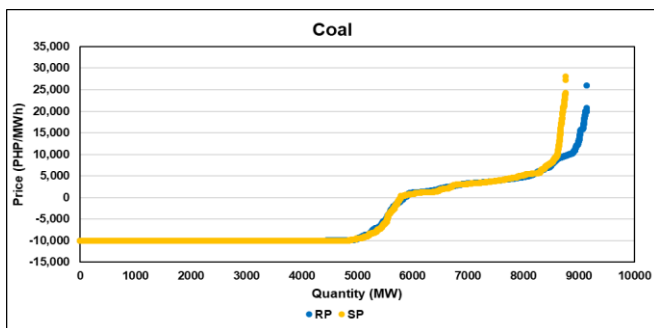
PSI

**HERFINDAHL-HIRSCHMAN INDEX**

OFFER PATTERN ANALYSIS
Legend

RP: Reference Offer Price – the week of 26 Jun-02 Jul 2023 was used as a control for the comparison with the subject price

SP: Subject Offer Price – the week of 03-09 Jul 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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