

PEMC MARKET ASSESSMENT HIGHLIGHTS

- The average demand and the reserve schedule, recorded at 11,632 MW during the week of 12 - 18 Dec 2022, was higher than the previous week at 11,475 and lower than the same week last year at 10,653 MW.
- The average effective supply during the week was 11,934 MW, higher than the 11,725 MW of the previous week and higher than the 11,249 MW during the same week last year. Ramping limitations were considered in the calculation of the effective supply.
 - The capacity on outage averaged at 4,540 MW, lower than last week's 4,990 MW. About 57% of the 4,540 MW involved Coal plants, while in terms of category, about 63% were Forced Outages.
- As a result, an average supply margin of 302 MW was observed during the week, which is higher by about 20% relative to the previous week and lower by about 49% in comparison with the same week last year. The supply deficit reached 107.53 MW on 14 December 2022 21:05. The average supply margin was 191.94 MW at peak intervals and 387.81 MW at off-peak intervals.
- Correspondingly, average GWAP was recorded at PHP 8,997/MWh from PHP 7,951/MWh last week. This is higher than the PHP5,020/MWh during the same week last year.
 - The secondary price cap was imposed during 1,305 intervals out of the 2,016 intervals of the week (about 65% 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 98.71% of the time)
 - MASINLOC CFTPP (about 95.98% of the time)
 - STA RITA NGPP (about 95.49% of the time)
 - SMC LIMAY CFTPP (about 90.48% of the time)
 - SUAL CFTPP (about 82.84% of the time)
- Based on the MMS Solution, the top 5 congested equipment during the week were –
 - 138kV Maasin-Ubay Line 1 (about 33.6% of the time)
 - 138kV Samboan-Amlan Line1 (about 17.7% of the time)
 - 138kV Colon-Cebu Line 2 (about 3.4% of the time)
 - 138kV Colon-Cebu Line 3 (about 0.74% of the time)
 - 230 kV Mexico-Hermosa Line2 (about 0.45% of the time)
- Coal plants offered more capacity this week. Hydro plants observed lower offer prices while natural gas plants observed higher offer prices in the middle portion of their respective offer curves during the week.

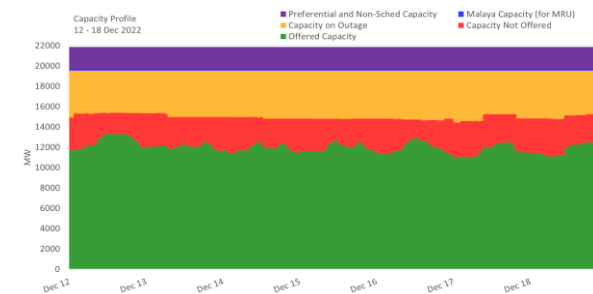
IEMOP MARKET SYSTEMS ADVISORY

- No IT-related issue was advised in IEMOP's market systems from 12 - 18 Dec 2022.

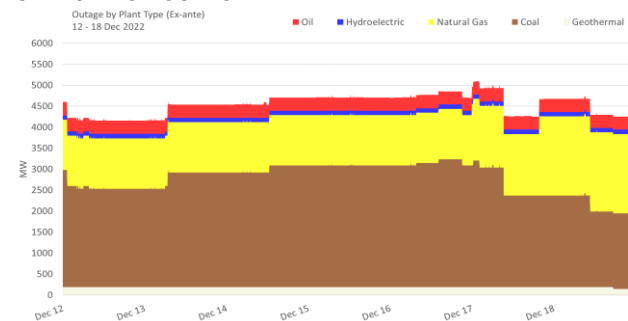
SUMMARY (PRICE, SUPPLY, DEMAND AND RESERVE SCHEDULE)

Particulars		12 - 18 Dec 2022	Previous Week (05 - 11 Dec 2022)	Same Week, Previous Year (06 - 12 Dec 2021)	Percent Change From	
					Previous Week	Same Week, Prev Year
GWAP (PHP/MWh)	max	35,947.11	39,751.76	31,141.51	-9.57%	15.43%
	min	-0.14	0.00	-8,855.36	-	100.00%
	ave	8,997.42	7,950.51	5,019.62	13.17%	79.24%
Effective Supply (MW)	max	13,777.68	13,356.81	12,859.55	3.15%	7.14%
	min	9,939.08	10,069.49	9,186.99	-1.30%	8.19%
	ave	11,933.99	11,725.36	11,248.67	1.78%	6.09%
System Demand (MW)	max	12,546.22	12,681.81	11,093.37	-1.07%	13.10%
	min	8,527.90	8,551.88	7,573.88	-0.28%	12.60%
	ave	10,725.75	10,583.89	9,531.16	1.34%	12.53%
Demand + Reserve Schedule (MW)	max	13,491.26	13,334.37	12,326.12	1.18%	9.45%
	min	9,359.60	9,539.36	8,702.88	-1.88%	7.55%
	ave	11,632.45	11,475.06	10,653.08	1.37%	9.19%
Supply Margin (MW)	max	944.27	944.71	1,129.12	-0.05%	-16.37%
	min	-107.53	-124.89	13.20	13.90%	-914.89%
	ave	301.54	250.30	595.59	20.47%	-49.37%

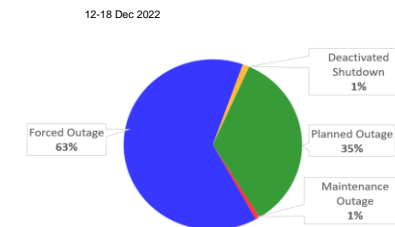
CAPACITY PROFILE



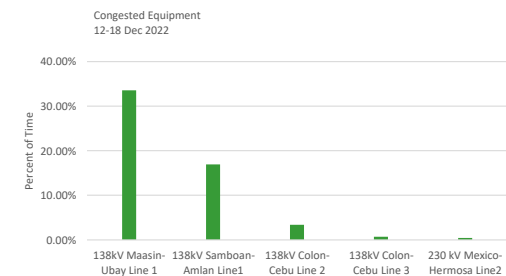
CAPACITY ON OUTAGE BY PLANT TYPE



CAPACITY ON OUTAGE BY OUTAGE CATEGORY



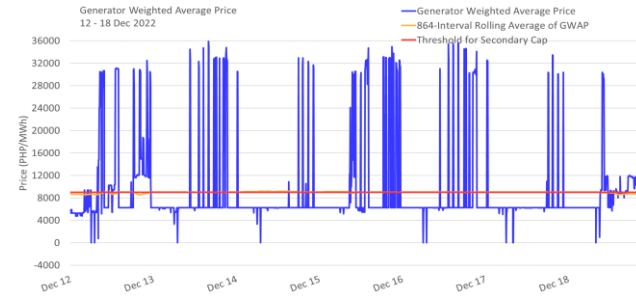
RTD CONGESTION



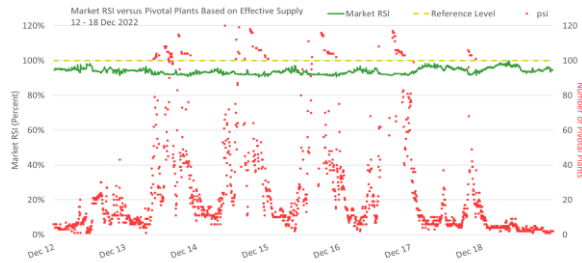
SUPPLY, DEMAND AND PRICE



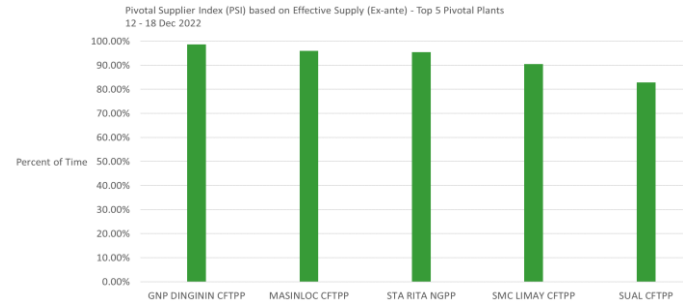
GENERATOR WEIGHTED AVERAGE PRICE



MARKET RSI VS PIVOTAL PLANTS



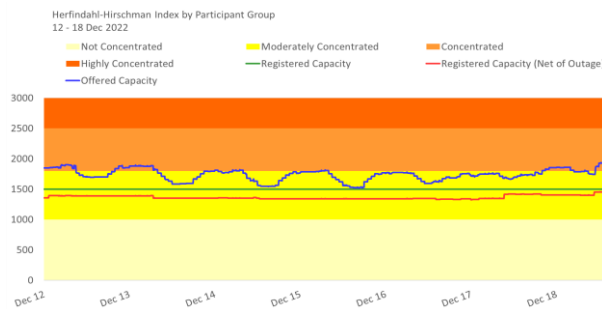
PSI



MARKET SHARE



HERFINDAHL-HIRSCHMAN INDEX

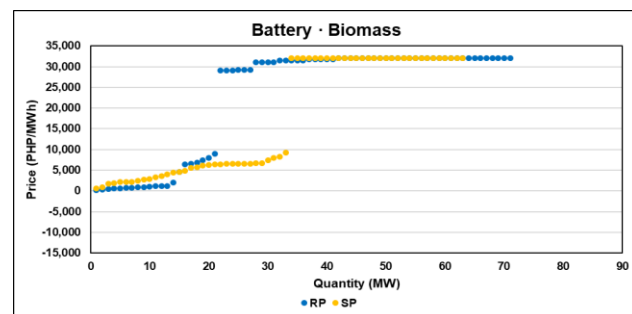
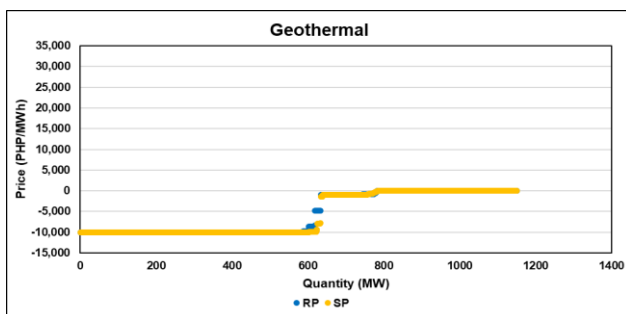
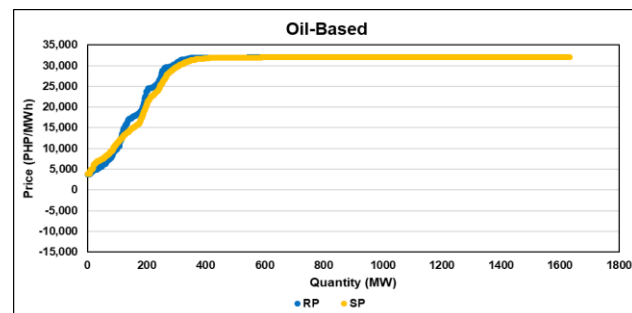
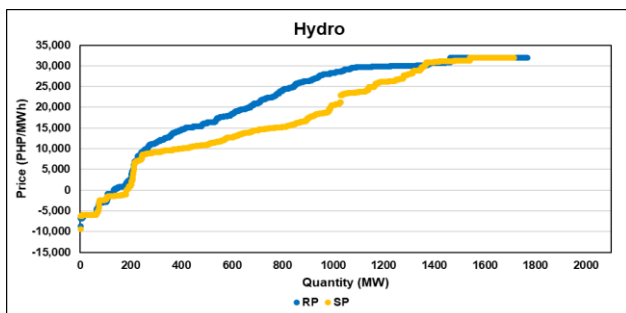
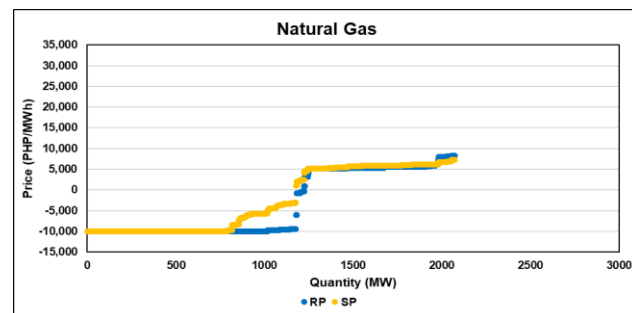
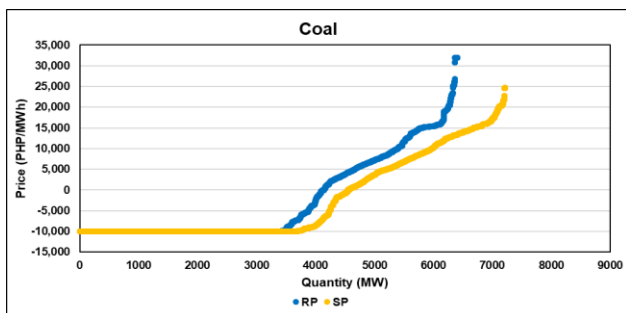


OFFER PATTERN ANALYSIS

Legend

RP: Reference Offer Price – the week of 05-11 Dec 2022 was used as a control for the comparison with the subject price

SP: Subject Offer Price – the week of 12-18 Dec 2022



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.

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

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

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.

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

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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