

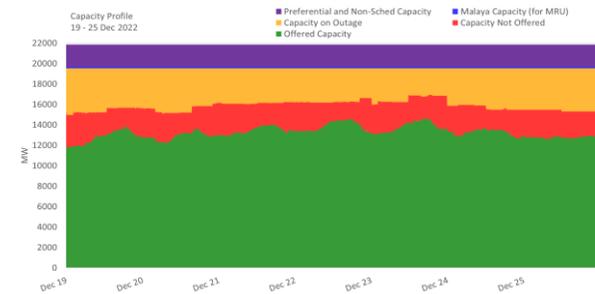
PEMC MARKET ASSESSMENT HIGHLIGHTS

- The average demand and the reserve schedule, recorded at 10,247 MW during the week of 19 - 25 Dec 2022, was lower than the previous week at 11,632 and lower than the same week last year at 10,263 MW.
 - The average effective supply during the week was 11,105 MW, lower than the 11,934 MW of the previous week and higher than the 10,698 MW during the same week last year. Ramping limitations were considered in the calculation of the effective supply.
 - The capacity on outage averaged at 3,646 MW, lower than last week's 4,540 MW. About 48% of the 3,646 MW involved Coal plants, while in terms of category, about 59% were Forced Outages.
 - As a result, an average supply margin of 858 MW was observed during the week, which is higher by about 185% relative to the previous week and higher by about 102% in comparison with the same week last year. The thinnest supply margin was 329.29 MW on 23 December 2022 00:05. The average supply margin was 811.43 MW at peak intervals and 886.89 MW at off-peak intervals.
 - Correspondingly, average GWAP was recorded at PHP 5,631/MWh from PHP 8,997/MWh last week. This is lower than the PHP6,681/MWh during the same week last year.
 - No secondary price cap was imposed for this week
 - 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 69.69% of the time)
 - STA RITA NGPP (about 24.45% of the time)
 - SUAL CFTPP (about 19.2% of the time)
 - MASINLOC CFTPP (about 17.76% of the time)
 - KALAYYAN PSPP (about 3.87% of the time)
 - Based on the MMS Solution, the congested equipment during the week were –
 - 138kV Maasin-Ubay Line 1 (about 54.5% of the time)
 - 138kV Samboan-Amlan Line1 (about 0.45% of the time)
 - Makban-A Transformer 1 (about 0.4% of the time)
 - Lapu-lapu_Transformer 2 (about 0.05% of the time)
 - Coal plants offered more capacity this week following the resumption of operations of some plants from outages. Similarly, hydro plants recorded higher offered capacity. Meanwhile, oil-based plants showed changes in its offer prices at the start of its offer curve.
- IEMOP MARKET SYSTEMS ADVISORY
- No IT-related issue was advised in IEMOP's market systems from 19 - 25 Dec 2022.

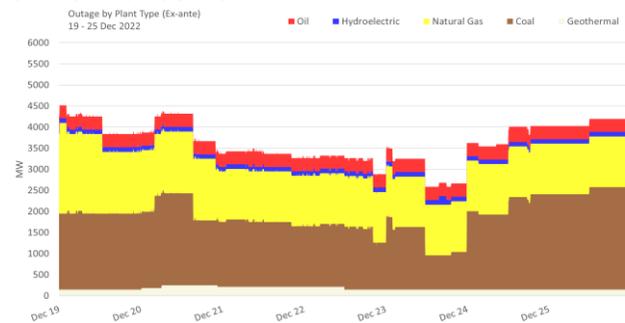
SUMMARY (PRICE, SUPPLY, DEMAND AND RESERVE SCHEDULE)

Particulars	19 - 25 Dec 2022	Previous Week (12 - 18 Dec 2022)	Same Week, Previous Year (13 - 19 Dec 2021)	Percent Change From	
				Previous Week	Same Week, Prev Year
GWAP (PHP/MWh)	max	18,358.48	35,947.11	-48.93%	-41.78%
	min	-9,824.74	-0.14	-7M%	-2.98%
	ave	5,631.05	8,997.42	-37.41%	-15.71%
Effective Supply (MW)	max	13,503.36	13,777.68	-1.99%	1.96%
	min	8,507.60	9,939.08	-14.40%	1.47%
	ave	11,105.15	11,933.99	-6.95%	3.81%
System Demand (MW)	max	11,732.96	12,546.22	-6.48%	2.42%
	min	6,653.25	8,527.90	-21.98%	-8.74%
	ave	9,317.64	10,725.75	-9.29251	0.27%
Demand + Reserve Schedule (MW)	max	12,677.79	13,491.26	-6.03%	-0.58%
	min	7,373.25	9,359.60	-21.22%	-8.18%
	ave	10,247.01	11,632.45	-11.91%	-0.16%
Supply Margin (MW)	max	1,359.11	944.27	982.40	43.93%
	min	329.29	-107.53	-9,058.48	406.24%
	ave	858.14	301.54	424.82	184.59%

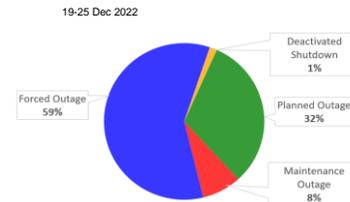
CAPACITY PROFILE



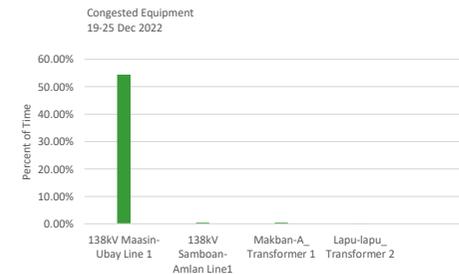
CAPACITY ON OUTAGE BY PLANT TYPE



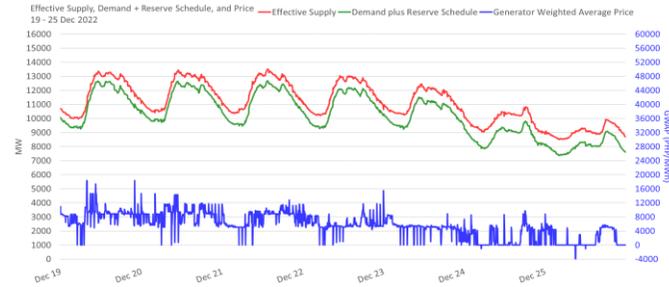
CAPACITY ON OUTAGE BY OUTAGE CATEGORY



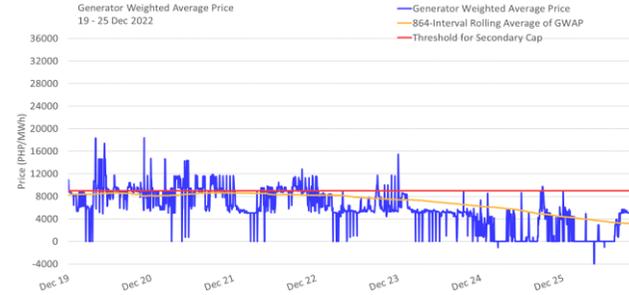
RTD CONGESTION



SUPPLY, DEMAND AND PRICE



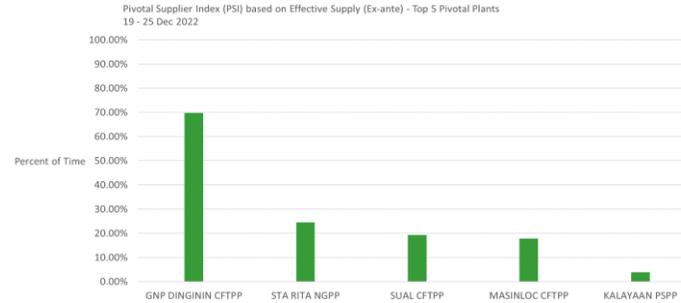
GENERATOR WEIGHTED AVERAGE PRICE



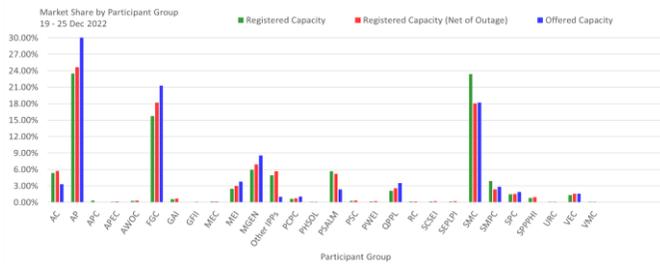
MARKET RSI VS PIVOTAL PLANTS



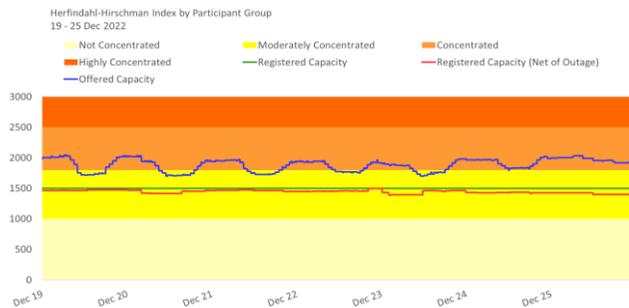
PSI



MARKET SHARE



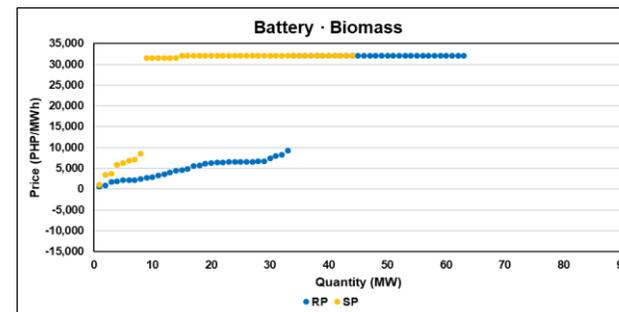
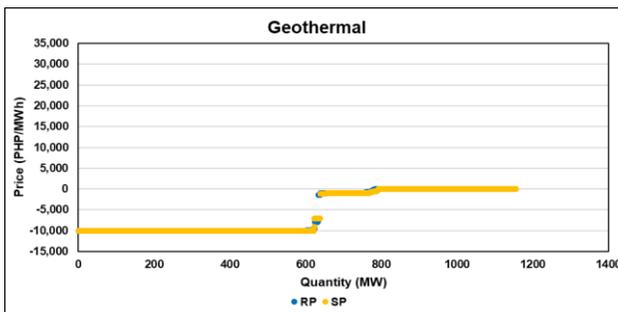
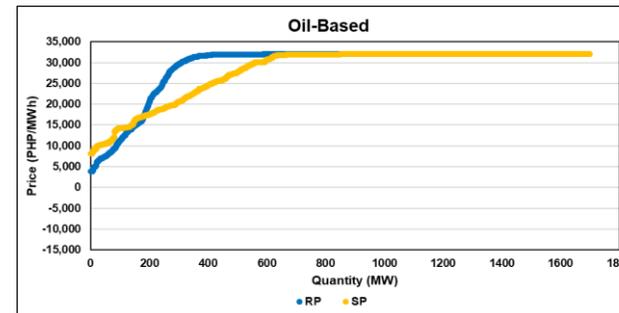
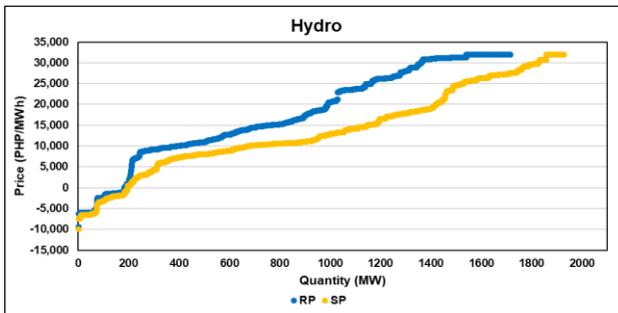
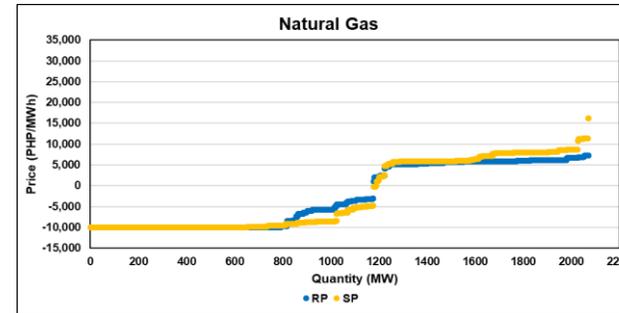
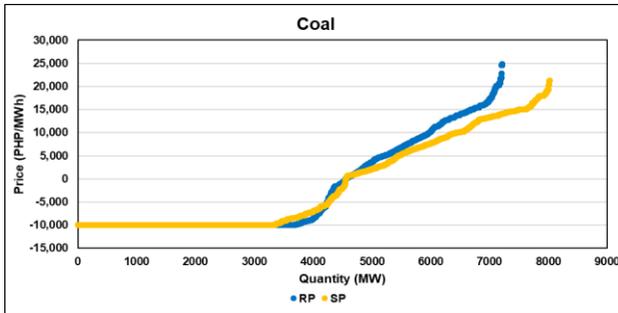
HERFINDAHL-HIRSCHMAN INDEX



OFFER PATTERN ANALYSIS

Legend

RP: Reference Offer Price – the week of 12-18 Dec 2022 was used as a control for the comparison with the subject price
 SP: Subject Offer Price – the week of 19-25 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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