

### PEMC MARKET ASSESSMENT HIGHLIGHTS

- The average demand and the reserve schedule, recorded at 11,475 MW during the week of 05 - 11 Dec 2022, was lower than the previous week at 11,623 and lower than the same week last year at 11,031 MW.

- The average effective supply during the week was 11,725 MW, lower than the 11,918 MW of the previous week and higher than the 11,507 MW during the same week last year. Ramping limitations were considered in the calculation of the effective supply.  
- The capacity on outage averaged at 4,990 MW, lower than last week's 5,038 MW. About 62% of the 4,990 MW involved Coal plants, while in terms of category, about 66% were Forced Outages.

- As a result, an average supply margin of 250 MW was observed during the week, which is lower by about 15% relative to the previous week and lower by about 47% in comparison with the same week last year. The supply deficit reached 124.89 MW on 05 December 2022 20:05. The average supply margin was 164.8 MW at peak intervals and 302.91 MW at off-peak intervals.

- Correspondingly, average GWAP was recorded at PHP 7,951/MWh from PHP 9,158/MWh last week. This is higher than the PHP6,379/MWh during the same week last year.

- The secondary price cap was imposed during 1,293 intervals out of the 2,016 intervals of the week (about 64% of the time), lower than the last week at 1,560 intervals (about 77% of the time).

- The top 5 participant groups accounted for about 83% 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 --

1. STA RITA NGPP (about 100.% of the time)
2. GNP DINGININ CFTPP (about 94.25% of the time)
3. SMC LIMAY CFTPP (about 90.67% of the time)
4. SAN LORENZO NGPP (about 87.% of the time)
5. MASINLOC CFTPP (about 86.9% of the time)

- Based on the MMS Solution, the top 5 congested equipment during the week were --

1. 138kV Maasin-Ubay Line 1 (about 34.5% of the time)
2. 138kV Samboan-Amlan Line1 (about 17.3% of the time)
3. MAKBAN-B\_Transformer 3 (0.55% of the time)
4. 138kV Colon-Cebu Line 3 (0.35% of the time)
5. MAKBAN-B\_Transformer 4 (0.1% of the time)

- Coal and natural gas plants had higher offered capacity while hydro plants recorded a decrease during the week.

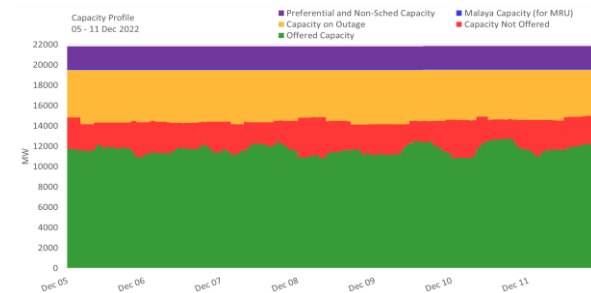
### ITEMOP MARKET SYSTEMS ADVISORY

- No IT-related issue was advised in ITEMOP's market systems from 05 - 11 Dec 2022.

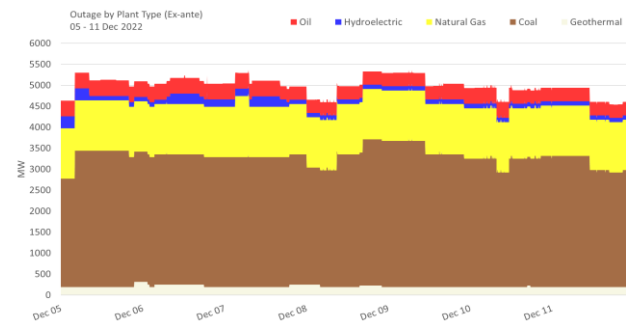
### SUMMARY (PRICE, SUPPLY, DEMAND AND RESERVE SCHEDULE)

Particulars		05 - 11 Dec 2022	Previous Week (28 Nov - 04 Dec 2022)	Same Week, Previous Year (29 Nov -05 Dec 2021)	Percent Change From	
					Previous Week	Same Week, Prev Year
GWAP (PHP/MWh)	max	39,751.76	39,539.32	31,733.13	0.54%	25.27%
	min	0.00	-9,721.02	-1,044.57	100.00%	100.00%
	ave	7,950.51	9,158.23	6,379.09	-13.19%	24.63%
Effective Supply (MW)	max	13,356.81	13,780.09	13,514.75	-3.07%	-1.17%
	min	10,069.49	9,673.96	9,502.20	4.09%	5.97%
	ave	11,725.36	11,917.97	11,507.00	-1.62%	1.90%
System Demand (MW)	max	12,681.81	13,014.55	12,117.91	-2.56%	4.65%
	min	8,551.88	8,420.61	7,700.65	1.56%	11.05%
	ave	10,583.89	10,786.60	9,920.68	-1.88%	6.69%
Demand + Reserve Schedule (MW)	max	13,334.37	13,602.59	13,219.10	-1.97%	0.87%
	min	9,539.36	9,238.11	8,801.65	3.26%	8.38%
	ave	11,475.06	11,622.64	11,031.43	-1.27%	4.02%
Supply Margin (MW)	max	944.71	931.37	964.81	1.43%	-2.08%
	min	-124.89	-343.91	-4.66	63.69%	-2,580.84%
	ave	250.30	295.32	475.56	-15.25%	-47.37%

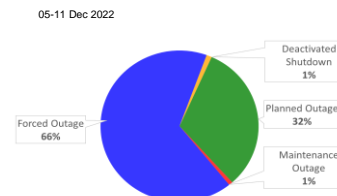
### CAPACITY PROFILE



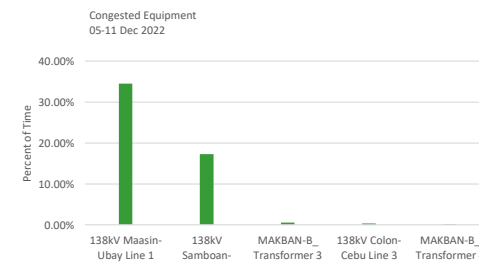
### CAPACITY ON OUTAGE BY PLANT TYPE



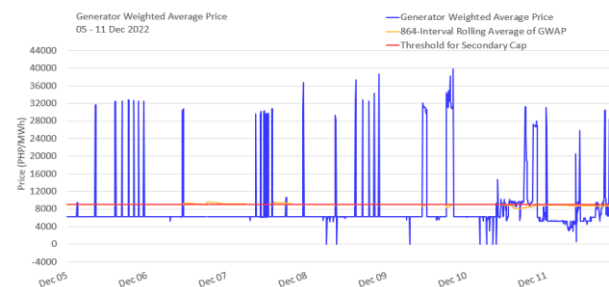
### CAPACITY ON OUTAGE BY OUTAGE CATEGORY



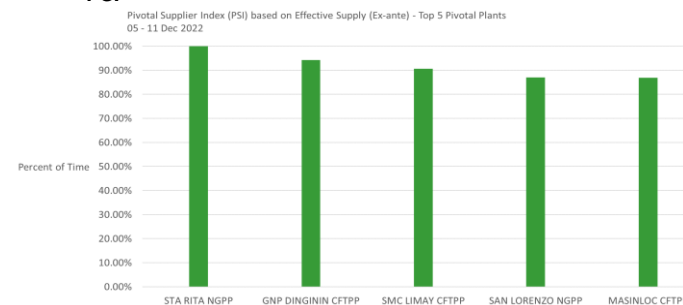
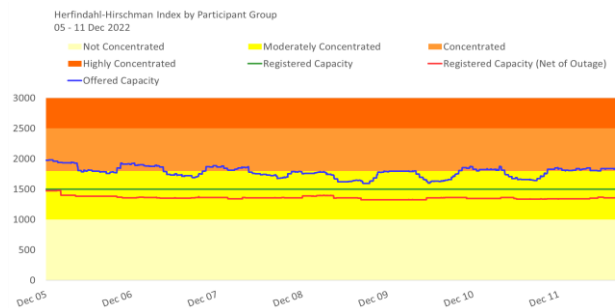
### RTD CONGESTION



### GENERATOR WEIGHTED AVERAGE PRICE



## PSI

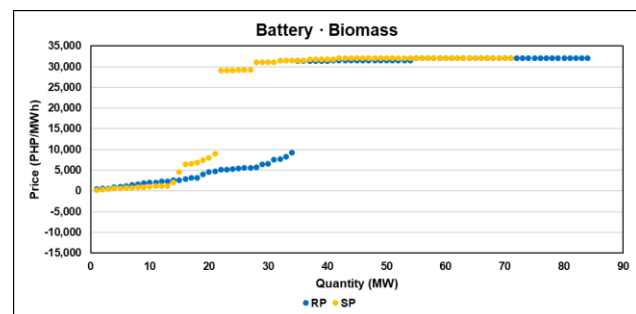
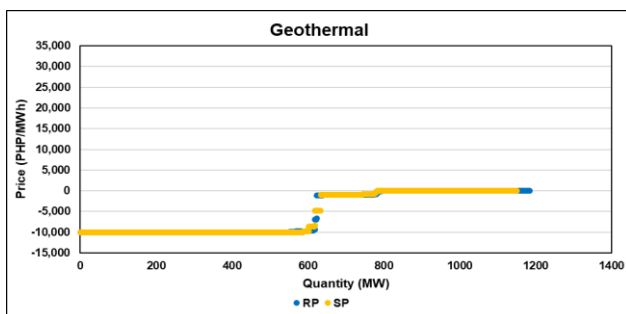
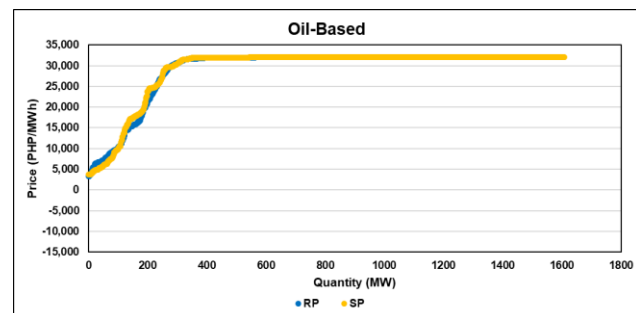
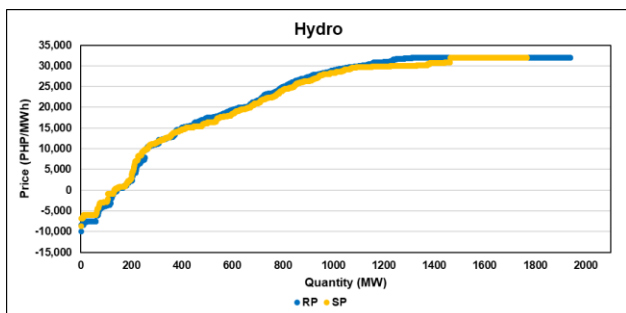
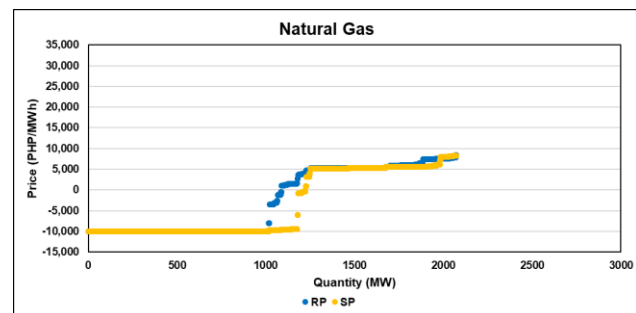
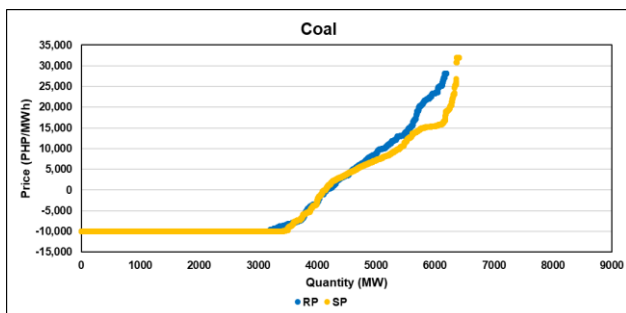
**HERFINDAHL-HIRSCHMAN INDEX**

## OFFER PATTERN ANALYSIS

### Legend

RP: Reference Offer Price – the week of 28 Nov-04 Dec 2022 was used as a control for the comparison with the subject price

SP: Subject Offer Price – the week of 05-11 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 generator is pivotal in a period (i.e. weekly).

**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 in the WESM.

**REGISTERED CAPACITY (NET OF OUTAGE)** - The capacity registered by a generator in the WESM less capacity on outage.

**OFFERED CAPACITY** - The offer to supply electricity submitted by a generator.

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