

PEMC MARKET ASSESSMENT HIGHLIGHTS

- The average demand and the reserve schedule, recorded at 12,143 MW during the week of 20 - 26 Mar 2023, was higher than the previous week at 11,511 and lower than the same week last year at 12,222 MW.
- The average effective supply during the week was 12,533 MW, higher than the 12,182 MW of the previous week and lower than the 12,654 MW during the same week last year. Ramping limitations were considered in the calculation of the effective supply.
 - The capacity on outage averaged at 2,985 MW, higher than last week's 2,733 MW. About 37% of the 2,985 MW involved Natural Gas plants, while in terms of category, about 68% were Forced Outages.
- As a result, an average supply margin of 390 MW was observed during the week, which is lower by about 41.895% relative to the previous week and lower by about 9.681% in comparison with the same week last year. The supply deficit reached 154.65 MW on 21 March 2023 15:55. The average supply margin was 314.29 MW at peak intervals and 449.43 MW at off-peak intervals.
- Correspondingly, average GWAP was recorded at PHP 7,767/MWh from PHP 5,632/MWh last week. This is lower than the PHP8,435/MWh during the same week last year. Administered Prices were used in the System Operator - initiated market intervention on 24 March 2023 (13:45-14:50) for Visayas.
 - The secondary price cap was imposed during 1,075 intervals out of the 2,016 intervals of the week (about 53% of the time).
- The top 5 participant groups accounted for about 84% 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)
 - SUAL CFTPP (about 99.11% of the time)
 - MASINLOC CFTPP (about 74.36% of the time)
 - MARIVELES CFTPP (about 72.32% of the time)
 - PAGBILAO CFTPP (about 70.19% of the time)

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

- 230kV Mexico-Hermosa Line2 (about 15.7% of the time)
- 138kV Samboan-Amlan Line1 (about 10.4% of the time)
- 230kV Mexico-Hermosa Line1 (about 10.0% of the time)
- Pagbilao EHV_Transformer 2 (about 4.1% of the time)
- Hermosa-Duhat Line 1 (about 3.1% of the time)

Hydro plants recorded lower offered capacity following the outage of Magat HEP units 1 to 3 (97MW each). In addition, hydro and natural gas plants were recorded offering at higher prices during the week.

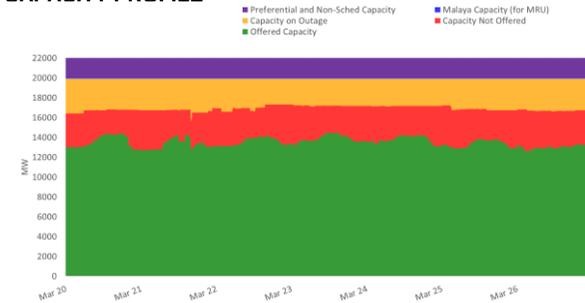
IEMOP MARKET SYSTEMS ADVISORY

The System Operator initiated Market Intervention for Visayas on 24 March 2023 (13:45-14:50) to prevent overloading of Cebu-Mandaue Line1.

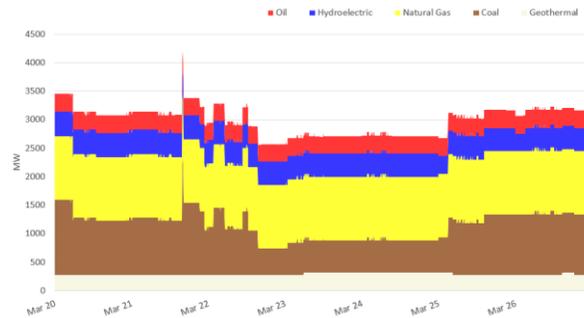
SUMMARY (PRICE, SUPPLY, DEMAND AND RESERVE SCHEDULE)

Particulars		20 - 26 Mar 2023	Previous Week (13 - 19 Mar 2023)	Same Week, Previous Year (21 - 27 Mar 2022)	Percent Change From	
					Previous Week	Same Week, Prev Year
GWAP (PHP/MWh)	max	35,248.79	21,900.09	33,802.61	60.95%	4.28%
	min	-1.00	-1,600.58	-994.02	99.94%	99.90%
	ave	7,767.10	5,632.34	8,434.81	37.90%	-7.92%
Effective Supply (MW)	max	14,593.96	14,392.63	14,786.82	1.40%	-1.30%
	min	10,003.36	9,978.79	10,422.91	0.25%	-4.03%
	ave	12,532.61	12,181.85	12,653.65	2.88%	-0.96%
System Demand (MW)	max	13,712.14	12,534.08	13,835.33	9.40%	-0.89%
	min	8,498.41	8,327.73	8,926.85	2.05%	-4.80%
	ave	11,285.46	10,492.50	11,450.72	7.56%	-1.44%
Demand + Reserve Schedule (MW)	max	14,420.25	13,733.36	14,521.06	5.00%	-0.69%
	min	9,291.41	9,215.23	9,839.06	0.83%	-5.57%
	ave	12,142.71	11,510.82	12,221.95	5.49%	-0.65%
Supply Margin (MW)	max	924.30	1,054.81	972.57	-12.37%	-4.96%
	min	-154.65	270.83	-82.40	-157.10%	-87.69%
	ave	389.91	671.03	431.70	-41.89%	-9.68%

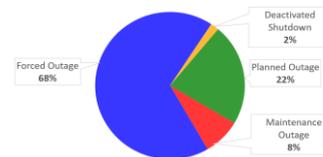
CAPACITY PROFILE



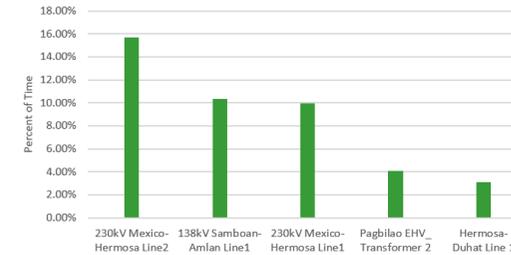
CAPACITY ON OUTAGE BY PLANT TYPE



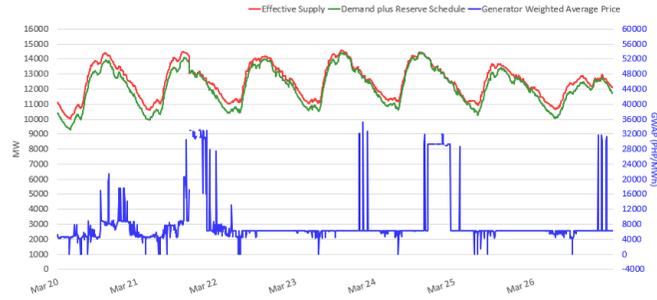
CAPACITY ON OUTAGE BY OUTAGE CATEGORY



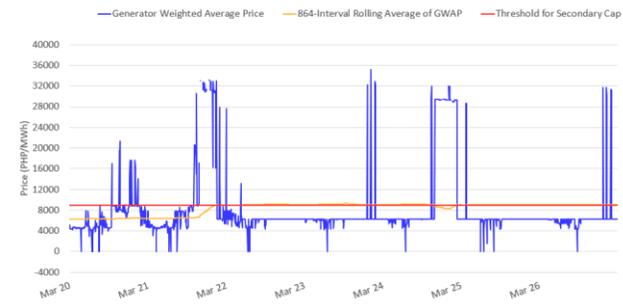
RTD CONGESTION



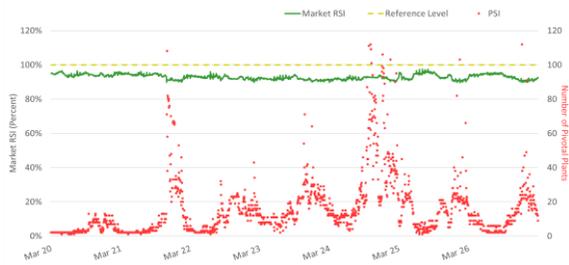
SUPPLY, DEMAND AND PRICE



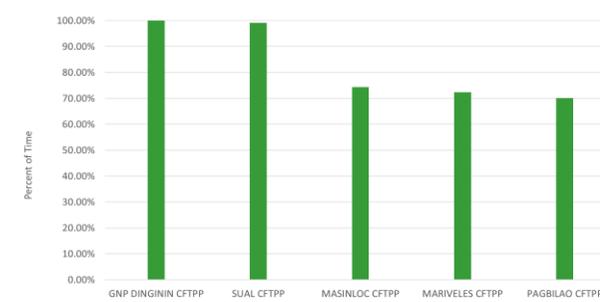
GENERATOR WEIGHTED AVERAGE PRICE



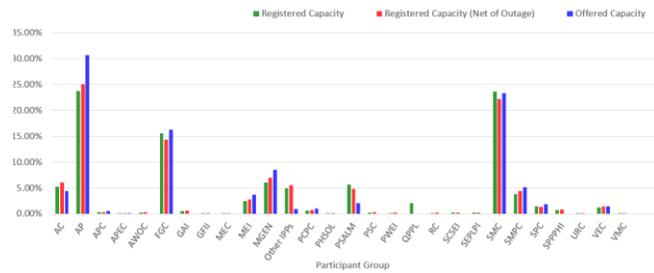
MARKET RSI VS PIVOTAL PLANTS



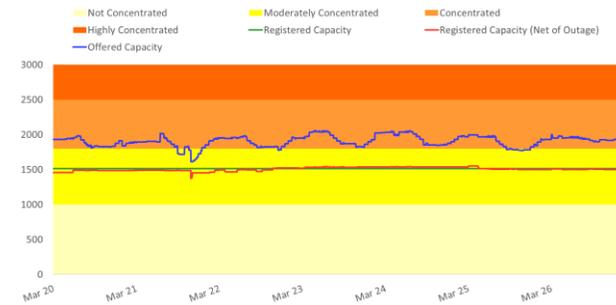
PSI



MARKET SHARE



HERFINDAHL-HIRSCHMAN INDEX

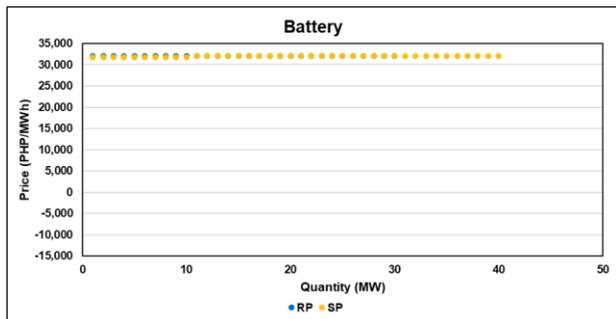
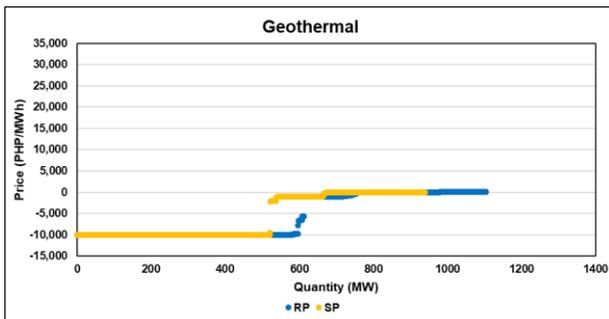
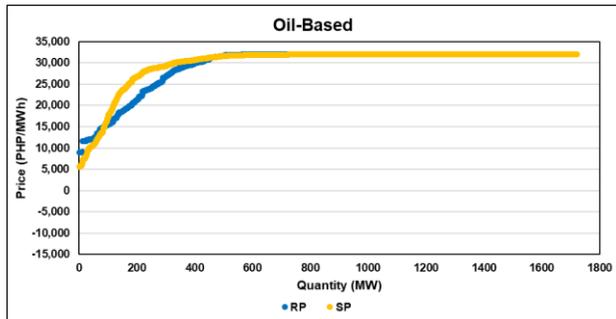
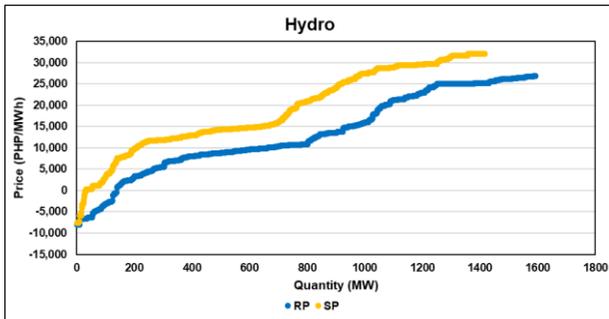
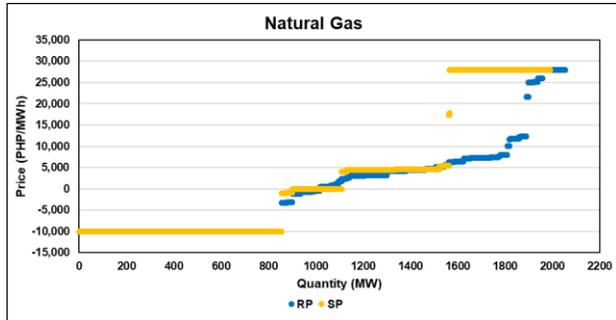
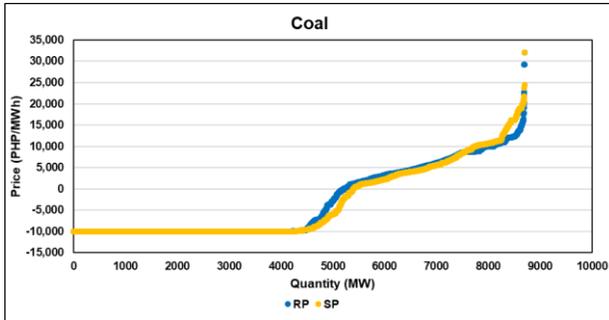


OFFER PATTERN ANALYSIS

Legend

RP: Reference Offer Price – the week of 13-19 Mar 2023 was used as a control for the comparison with the subject price

SP: Subject Offer Price – the week of 20-26 Mar 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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