

## PEMC MARKET ASSESSMENT HIGHLIGHTS

- The average demand and the reserve schedule, recorded at 12,860 MW during the week of 04 - 10 Mar 2024, was higher than the previous week at 12,293 MW and higher than the same week last year at 11,127 MW.
- The average effective supply during the week was 13,247 MW, higher than the 12,778 MW of the previous week and higher than the 11,829 MW during the same week last year. Ramping limitations were considered in the calculation of the effective supply.
  - The capacity on outage averaged at 3,329 MW, lower than last week's 3,985 MW. In terms of capacity on outage by plant type, about 41% of the 3,329 MW involved Coal Plants, while in terms of category, about 69% were Planned Outages.
- As a result, an average supply margin of 387 MW was observed during the week, which is lower by about 20.031% relative to the previous week and lower by about 44.755% in comparison with the same week last year. The supply deficit based on MMS solution was 2.16 MW on 05 March 2024 21:05h. The average supply margin was 306.31 MW at peak intervals and 451.34 MW at off-peak intervals.
- Correspondingly, average GWAP was recorded at PHP 5,428/MWh from PHP 5,350/MWh last week. This is higher than the PHP 5,262/MWh during the same week last year. The coupling of energy and reserve is evident in the co-optimized solution of the MMS, resulting in the presence of opportunity costs in both energy and reserve prices.
  - The secondary price cap was imposed during 333 intervals out of the 2,016 intervals of the week (about 17% of the time).
- The top 5 participant groups accounted for about 81% of the offered capacity. The Herfindahl-Hirschman Index (HHI) by participant group indicated mostly 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 (100% of the time)
  - STA RITA NGPP (100 % of the time)
  - MASINLOC CFTPP (about 99.95% of the time)
  - MARIVELES CFTPP (about 99.36% of the time)
  - SUAL CFTPP (about 99.26% of the time)
- Based on the MMS Solution, the top 5 congested equipment during the week were –
  - 138kV Samboan-Amlan Line1 (about 20.6% of the time)
  - 138kV Maasin-Ubay Line 1 (about 15 % of the time)
  - Supsol\_Transformer1 (about 2.4% of the time)
  - 230kV Bauang-BPPC Line1 (about 1.7% of the time)
  - 230kV Bauang-Latrinidad Line1 (about 1.3% of the time)

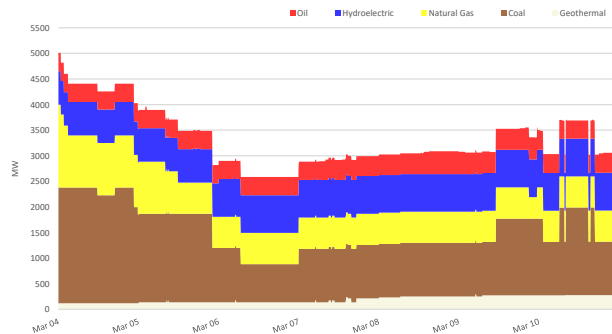
### OPA ANALYSIS

- The offered capacity of coal plants was higher than the previous week due to the fewer outages. However, there was an observed sudden decrease in offered capacity on March 07 due to the commercial testing of a coal plant scheduled thru security limits imposed by the Systems Operator, and on March 09 due to a decrease in offered capacity as well as a forced outage of coal plants.
- The capacity offered by the hydro plants was lower than the previous week due to increased outages. Starting from March 04 and continuing through March 08, there was an observed capacity of around 450MW, offered at prices ranging from PHP 30,000/MWh to PHP 32,000/MWh.
- Natural gas plants experienced an increase in offered capacity compared to the previous week due to the plants resuming operations.
- The lowest Solar Plant nomination was recorded on March 09, while the highest was recorded on March 06.
- The lowest nomination for Wind Plants was recorded on March 06, while the highest was on March 09.

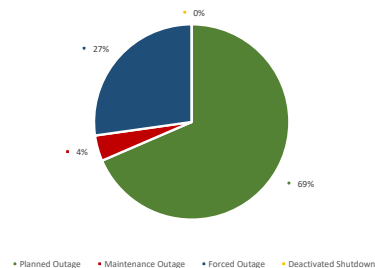
### IEMOP MARKET SYSTEMS ADVISORY

- No IT-related issue was advised in IEMOP's market systems from 04 - 10 Mar 2024.

## CAPACITY ON OUTAGE BY PLANT TYPE



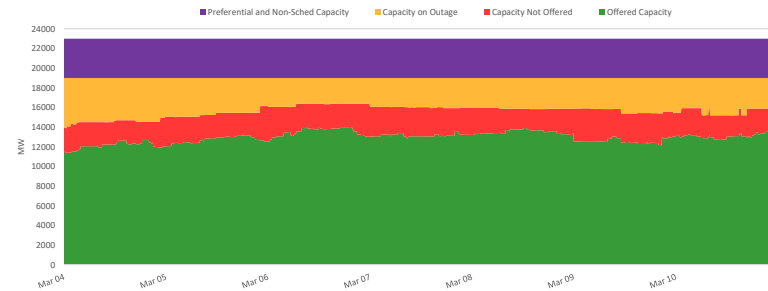
## CAPACITY ON OUTAGE BY OUTAGE CATEGORY



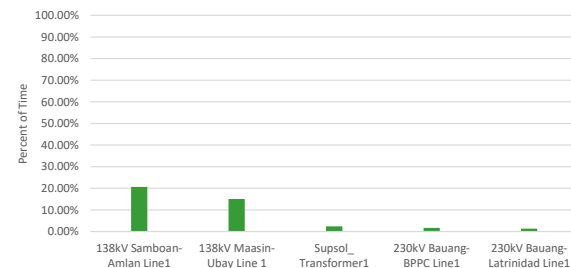
## SUMMARY (PRICE, SUPPLY, DEMAND AND RESERVE SCHEDULE)

Particulars		04 - 10 Mar 2024	Previous Week (26 Feb - 03 Mar 2024 )	Same Week, Previous Year (06 - 12 Mar 2023)	Percent Change From	
					Previous Week	Same Week, Prev Year
GWAP (PHP/MWh)	max	62,771.939	46,831.644	21,211.925	34.037%	195.928%
	min	-0.997	-0.012	-9,895.270	-8%	99.990%
	ave	5,428.238	5,349.802	5,261.843	1.466%	3.162%
Effective Supply (MW)	max	15,764.856	14,785.686	14,163.568	6.622%	11.306%
	min	10,769.135	10,474.914	9,072.990	2.809%	18.694%
	ave	13,247.407	12,777.889	11,828.673	3.674%	11.994%
System Demand (MW)	max	13,869.300	13,023.560	12,179.890	6.494%	13.870%
	min	9,018.670	8,976.180	7,646.660	0.473%	17.943%
	ave	11,533.917	11,052.783	10,067.790	4.353%	14.563%
Demand + Reserve Schedule (MW)	max	15,429.360	14,329.850	13,474.820	7.673%	14.505%
	min	10,273.940	9,946.650	8,424.890	3.290%	21.947%
	ave	12,859.950	12,293.381	11,127.328	4.609%	15.571%
Supply Margin (MW)	max	787.569	876.849	1,249.555	-10.182%	-36.972%
	min	-2.162	-184.554	270.517	98.829%	-100.799%
	ave	387.457	484.508	701.344	-20.031%	-44.755%

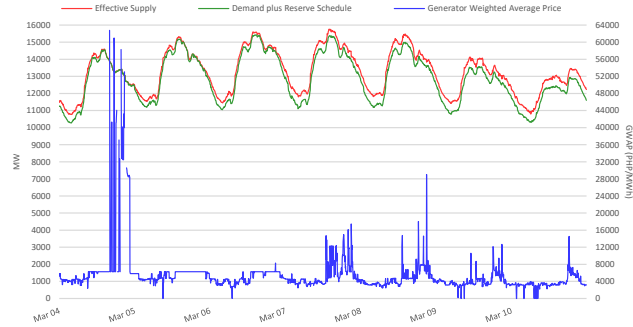
## CAPACITY PROFILE



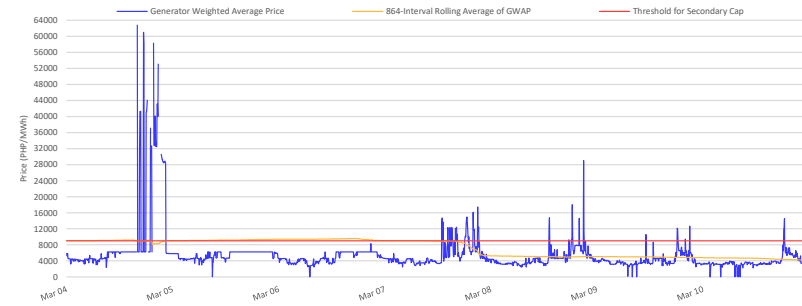
## RTD CONGESTION



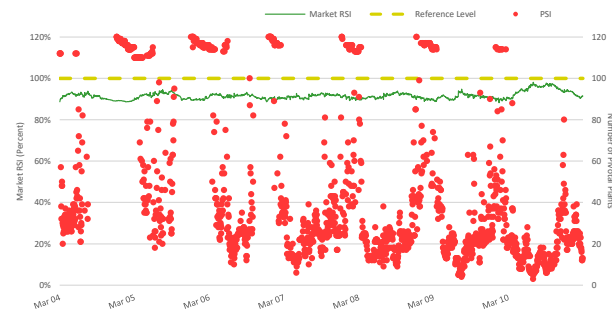
## SUPPLY, DEMAND AND PRICE



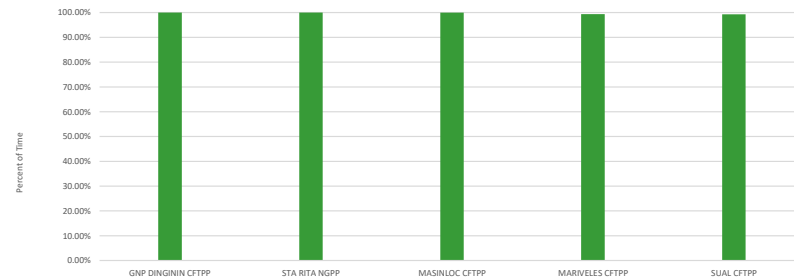
## GENERATOR WEIGHTED AVERAGE PRICE



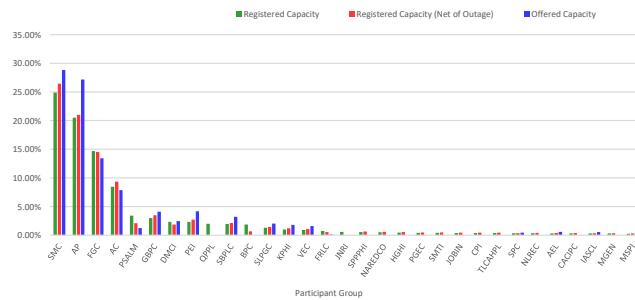
## MARKET RSI VS PIVOTAL PLANTS



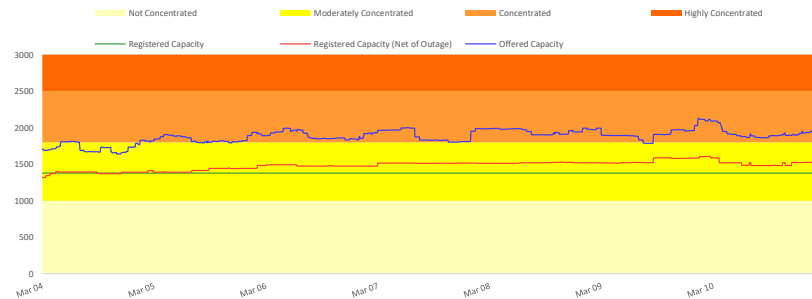
## PSI



## MARKET SHARE

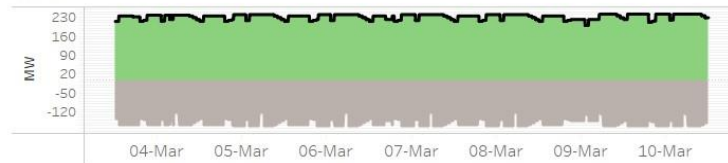


## HERFINDAHL-HIRSCHMAN INDEX

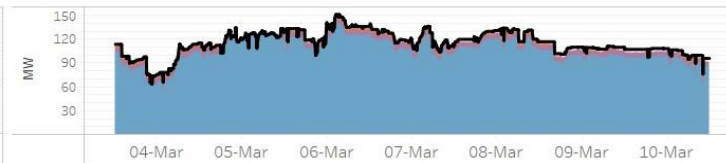


**OFFER PATTERN ANALYSIS**

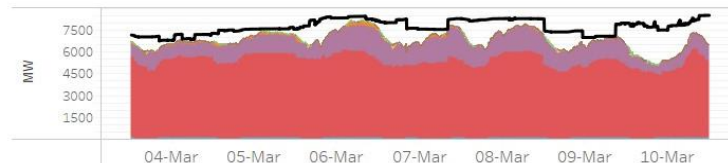
**BATTERY**



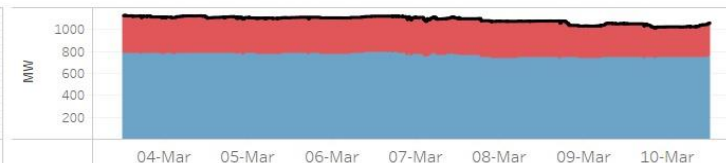
**BIOFUEL**



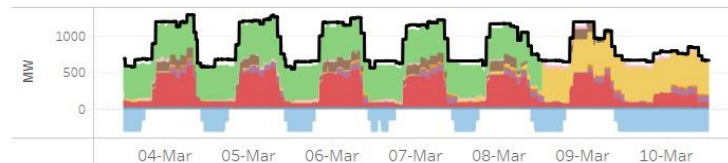
**COAL**



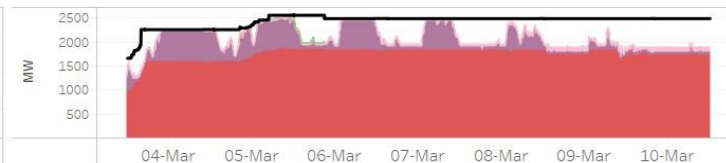
**GEOTHERMAL**



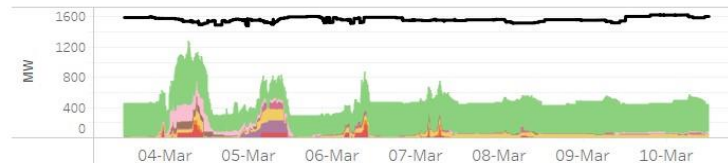
**HYDRO**



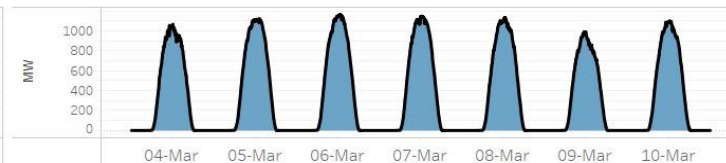
**NATURAL GAS**



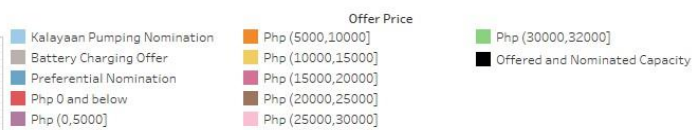
**OIL-BASED**



**SOLAR**



**WIND**



**Notes:**

1. In Php (X, Y], it includes offer price greater than Php X but less than or equal to Php Y.
2. Reflected capacity includes offered capacity of all scheduled generators, nominated loading level of nonscheduled generators and projected output of preferential dispatch generators adjusted based on submitted ramp rate limitations.

**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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