

## PEMC MARKET ASSESSMENT HIGHLIGHTS

- The average demand and the reserve schedule, recorded at 2,170 MW during the week of 18 - 24 Dec 2023, was higher than the previous week at 2,160 MW.
- The average effective supply during the week was 2,586 MW, higher than the 2,585 MW of the previous week. Ramping limitations were considered in the calculation of the effective supply.
  - The capacity on outage averaged at 409 MW, lower than last week's 412 MW. In terms of capacity on outage by plant type, about 50% of the 409 MW involved Coal Plants, while in terms of outage by category, about 68% were Forced Outages.
- As a result, an average supply margin of 417 MW was observed during the week, which is lower by about 1.804% relative to the previous week. The thinnest supply margin based on MMS solution was 241.42 MW on 20 December 2023 14:40. The average supply margin was 376.95 MW at peak intervals and 447.92 MW at off-peak intervals.
- Correspondingly, average GWAP was recorded at PHP 4,048/MWh from PHP 4,177/MWh last week.
  - No secondary price cap was imposed for this week
- The top 5 participant groups accounted for about 77% of the offered capacity. The Herfindahl-Hirschman Index (HHI) by participant group indicated moderately concentrated market based on the offered and registered capacities.
- The pivotal plants during the week were –
  - FDC MISAMIS CFTPP (about 4.27% of the time)
  - THERMA SOUTH CFTPP (about 4.02% of the time)
  - MALITA CFTPP (about 3.77% of the time)
  - GN POWER KAUSWAGAN CFTPP (about 3.57% of the time)
- Based on the MMS Solution, no congested equipment during the week.
- OPA ANALYSIS
  - Biofuel plants were nominated with a lesser capacity compared to the previous week.
  - Geothermal plants have increased their offered capacity to 35MW due to the resumption of generation at Mt. Apo 1.
  - On December 22 to 23, hydro plants offered a lower capacity due to outages at Agus and Pulangi
  - The capacity offered by coal plants was lower than the previous week due to outages.
  - Solar plants recorded their lowest nomination on December 18 and their highest on December 24.

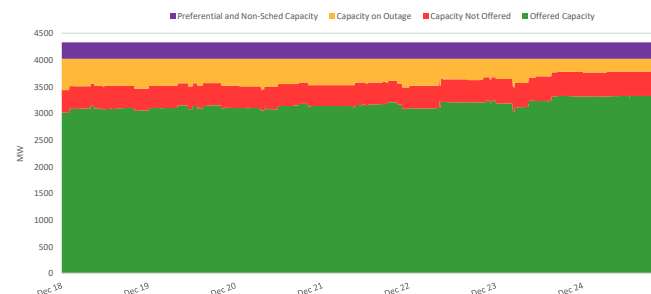
## IEMOP MARKET SYSTEMS ADVISORY

- No IT-related issue was advised in IEMOP's market systems from 18 - 24 Dec 2023.

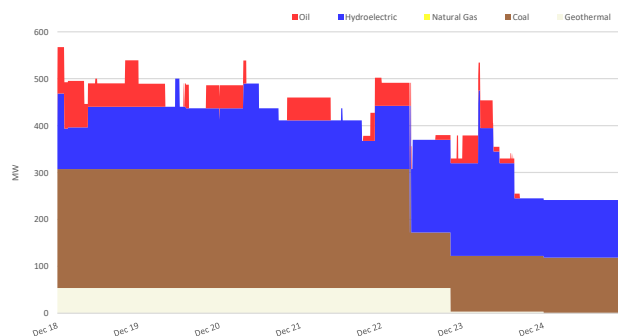
## SUMMARY (PRICE, SUPPLY, DEMAND AND RESERVE SCHEDULE)

Particulars		18 - 24 Dec 2023	Previous Week (11 - 17 Dec 2023)	Percent Change
GWAP (PHP/MWh)	max	23,360.335	28,302.896	-17.46%
	min	-9,464.445	-1.021	-926%
	ave	4,048.289	4,176.589	-3.07%
Effective Supply (MW)	max	2,959.667	2,955.403	0.14%
	min	1,850.344	2,098.390	-11.82%
	ave	2,586.239	2,584.799	0.06%
System Demand (MW)	max	2,284.780	2,412.870	-5.31%
	min	1,416.760	1,414.510	0.16%
	ave	1,830.158	1,923.789	-4.87%
Demand + Reserve Schedule (MW)	max	2,659.050	2,770.140	-4.01%
	min	1,302.650	1,546.410	-15.76%
	ave	2,169.591	2,160.484	0.42%
Supply Margin (MW)	max	683.887	627.416	9.00%
	min	241.421	138.163	74.74%
	ave	416.648	424.315	-1.81%

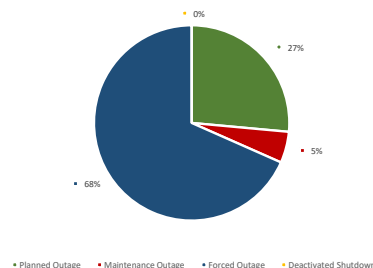
## CAPACITY PROFILE



## CAPACITY ON OUTAGE BY PLANT TYPE



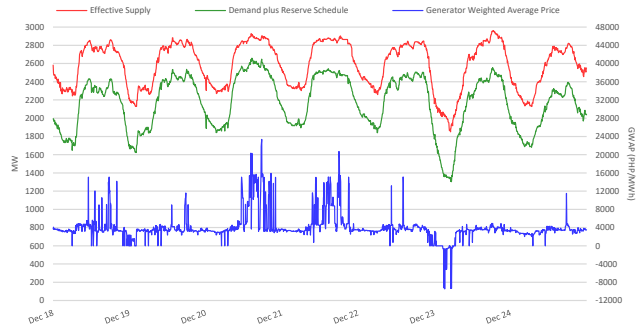
## CAPACITY ON OUTAGE BY OUTAGE CATEGORY



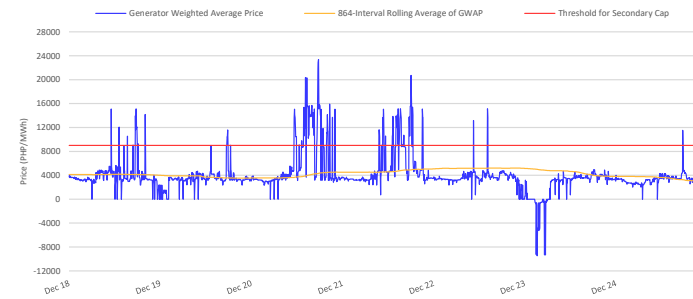
## RTD CONGESTION



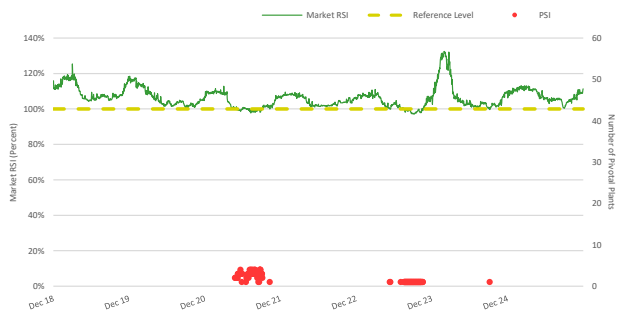
## SUPPLY, DEMAND AND PRICE



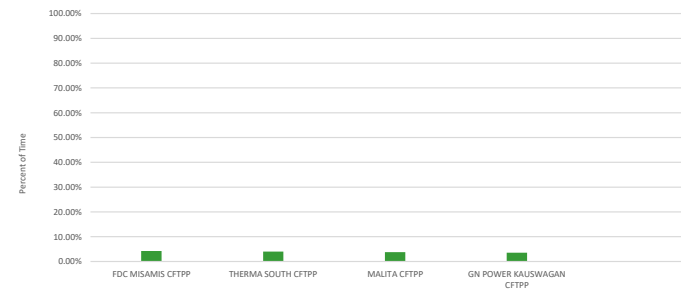
### GENERATOR WEIGHTED AVERAGE PRICE



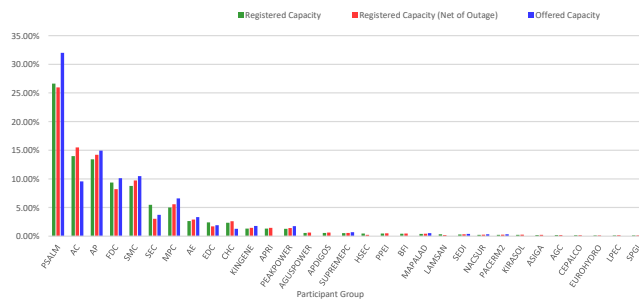
## MARKET RSI VS PIVOTAL PLANTS



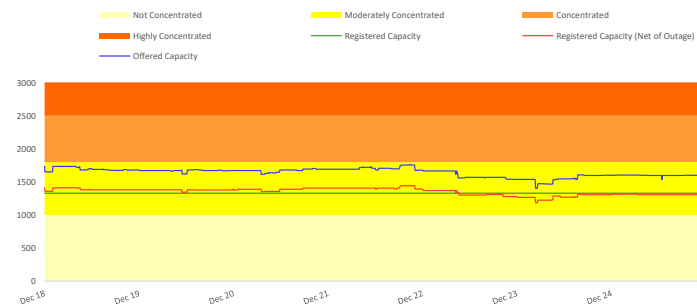
## PSI



## MARKET SHARE

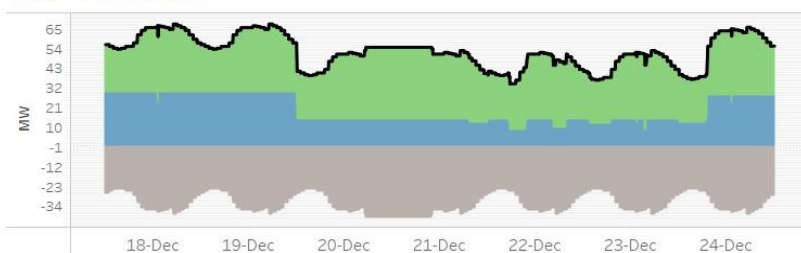


## HERFINDAHL-HIRSCHMAN INDEX

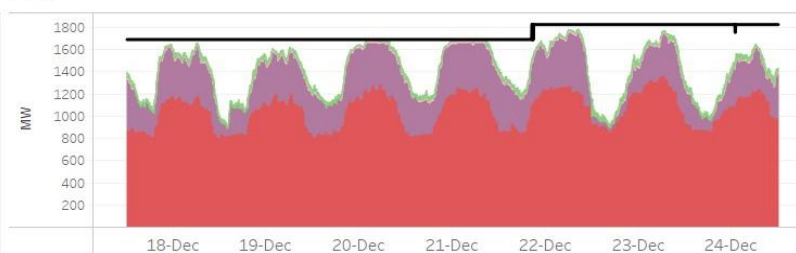


**OFFER PATTERN ANALYSIS**

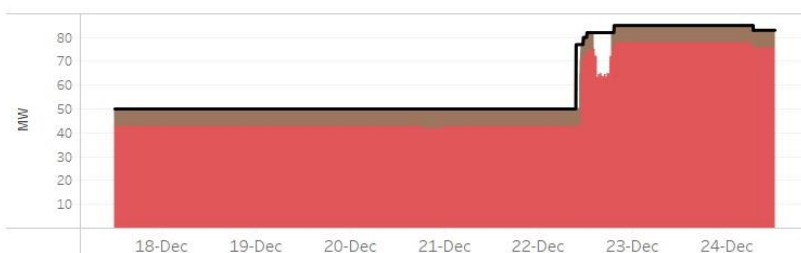
**BATTERY AND BIOFUEL**



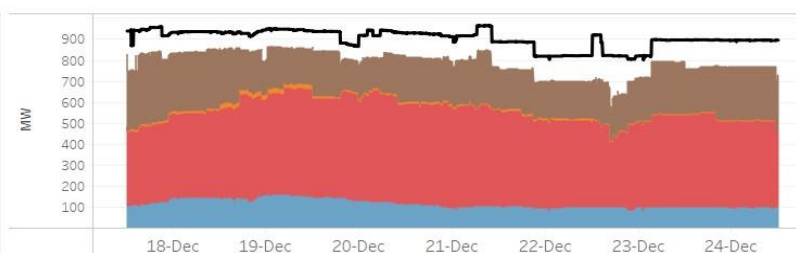
**COAL**



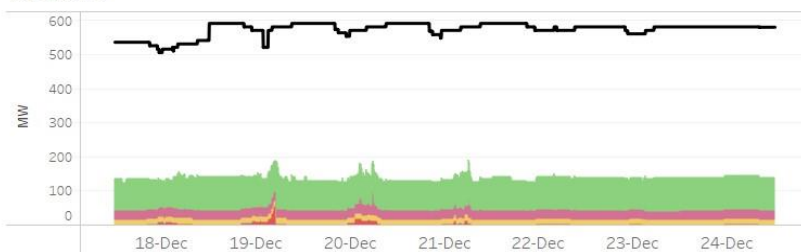
**GEO THERMAL**



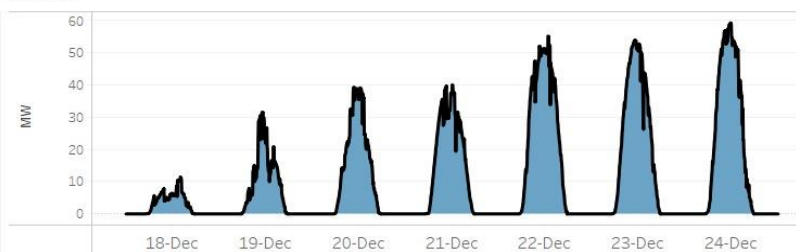
**HYDRO**



**OIL-BASED**



**SOLAR**



**Offer Price**



**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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