

PEMC MARKET ASSESSMENT HIGHLIGHTS

- The average demand and the reserve schedule, recorded at 2,160 MW during the week of 11 - 17 Dec 2023, was lower than the previous week at 2,170 MW.
- The average effective supply during the week was 2,585 MW, higher than the 2,558 MW of the previous week. Ramping limitations were considered in the calculation of the effective supply.
 - The capacity on outage averaged at 412 MW, higher than last week's 342 MW. In terms of capacity on outage by plant type, about 39% of the 412 MW involved Hydroelectric Plants, while in terms of outage by category, about 50% were Planned Outages.
- As a result, an average supply margin of 424 MW was observed during the week, which is higher by about 9% relative to the previous week. The minimum supply margin based on MMS solution was 138.16 MW on 11 December 2023 14:40h. The average supply margin was 389.62 MW at peak intervals and 451.63 MW at off-peak intervals.
- Correspondingly, average GWAP was recorded at PHP 4,177/MWh from PHP 3,185/MWh last week.
 - No secondary price cap was imposed for this week
- The top 5 participant groups accounted for about 78% 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 –
 - FDC MISAMIS CFTPP (about 21.78% of the time)
 - MALITA CFTPP (about 0.55% of the time)
 - THERMA SOUTH CFTPP (about 0.4% of the time)
 - GN POWER KAUSWAGAN CFTPP (about 0.35% of the time)
 - MINDANAO CFTPP (about 0.1% of the time)
- Based on the MMS Solution, the top 5 congested equipment during the week was Sultan Kudarat Transformer 3 (about 0.05% of the time)
- OPA_ANALYSIS
 - Battery plants offered a capacity pattern similar to the previous week
 - Geothermal plants have maintained the offered capacity of 50 MW for the entire week due to the planned outage of Mt. Apo 1 since December 5.
 - Hydro plants offered lower capacity compared to the previous week due to outages.
 - The capacity offered by coal plants was comparable to that of the previous week.
 - Solar plants recorded their highest nomination on December 12 and their lowest on December 17.

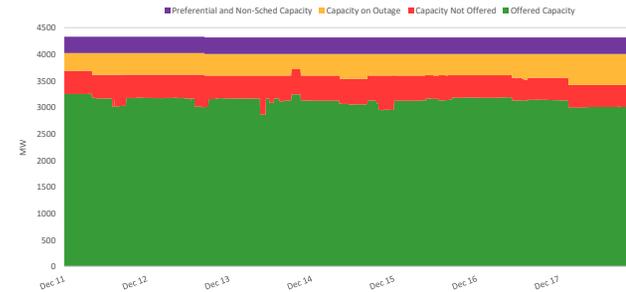
IEMOP MARKET SYSTEMS ADVISORY

- No IT-related issue was advised in IEMOP's market systems from 11 - 17 Dec 2023.

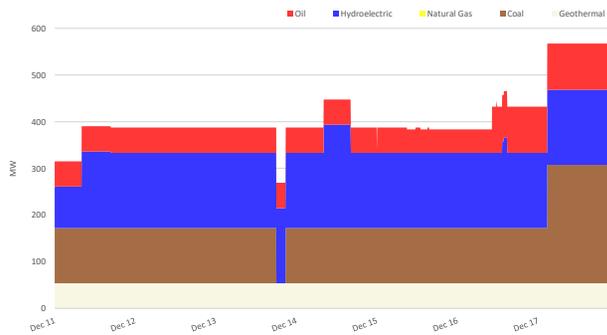
SUMMARY (PRICE, SUPPLY, DEMAND AND RESERVE SCHEDULE)

Particulars		11 - 17 Dec 2023	Previous Week (04 - 10 Dec 2023)	Percent Change
GWAP (PHP/MWh)	max	28,302.896	25,165.582	12.47%
	min	-1.021	-149.916	99.32%
	ave	4,176.589	3,185.131	31.13%
Effective Supply (MW)	max	2,955.403	3,007.900	-1.75%
	min	2,098.390	2,014.632	4.16%
	ave	2,584.799	2,558.245	1.04%
System Demand (MW)	max	2,412.870	2,376.800	1.52%
	min	1,414.510	1,425.030	-0.74%
	ave	1,923.789	1,890.578	1.76%
Demand + Reserve Schedule (MW)	max	2,770.140	2,742.500	1.01%
	min	1,546.410	1,553.720	-0.47%
	ave	2,160.484	2,170.315	-0.45%
Supply Margin (MW)	max	627.416	639.361	-1.87%
	min	138.163	227.895	-39.37%
	ave	424.315	387.930	9.38%

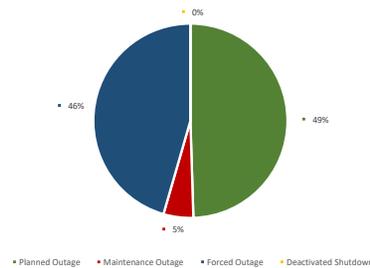
CAPACITY PROFILE



CAPACITY ON OUTAGE BY PLANT TYPE



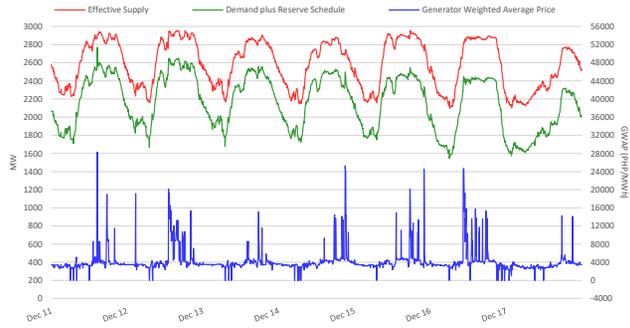
CAPACITY ON OUTAGE BY OUTAGE CATEGORY



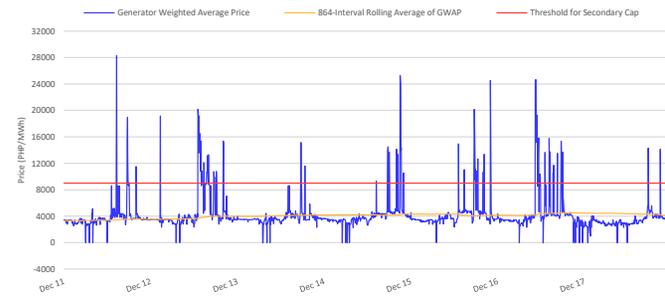
RTD CONGESTION



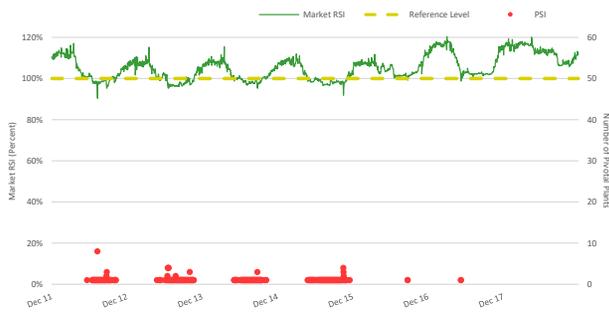
SUPPLY, DEMAND AND PRICE



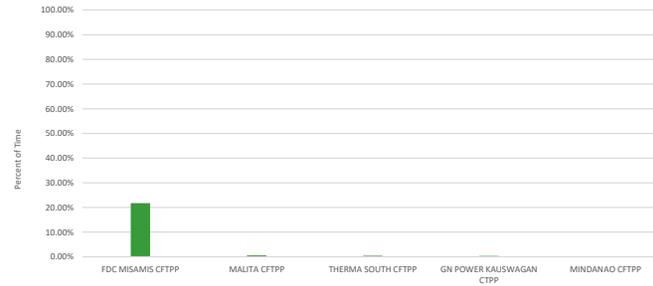
GENERATOR WEIGHTED AVERAGE PRICE



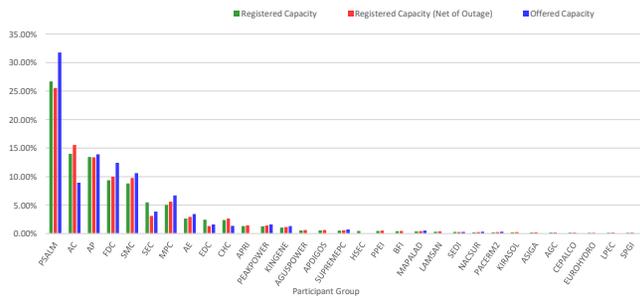
MARKET RSI VS PIVOTAL PLANTS



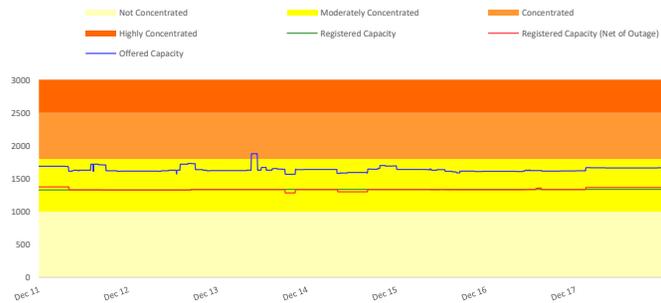
PSI



MARKET SHARE

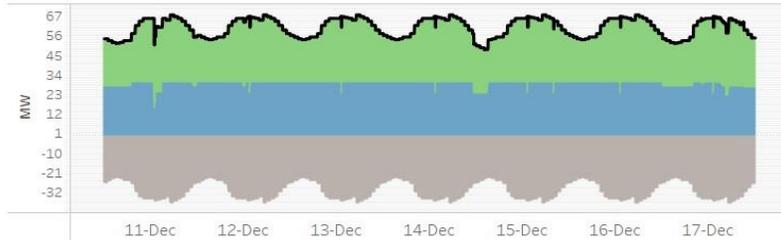


HERFINDAHL-HIRSCHMAN INDEX

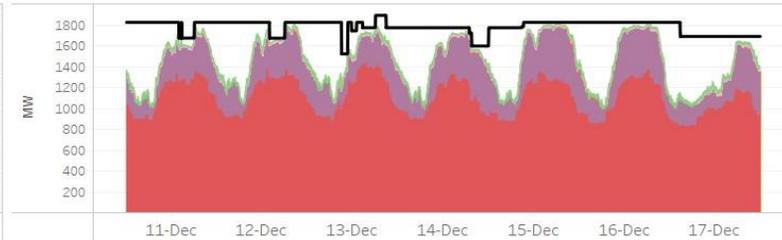


OFFER PATTERN ANALYSIS

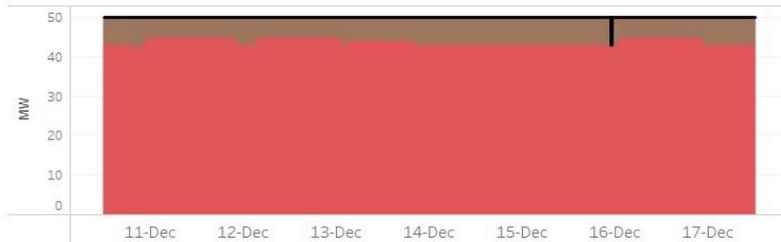
BATTERY AND BIOFUEL



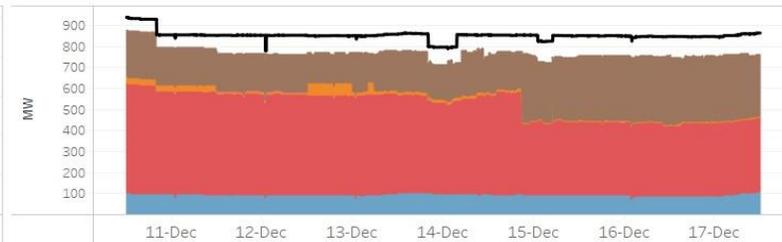
COAL



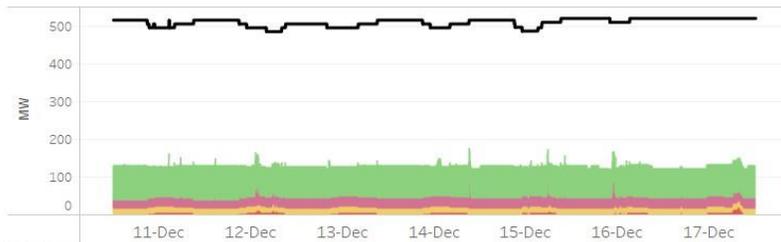
GEOTHERMAL



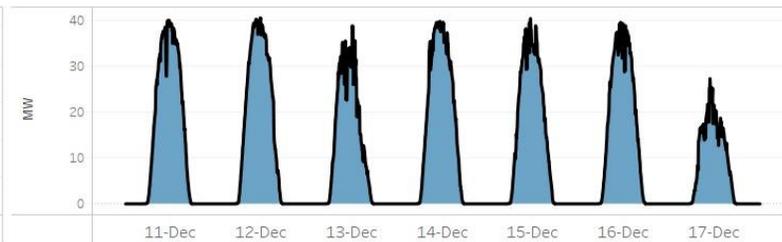
HYDRO



OIL-BASED



SOLAR



Offer Price

- Battery Charging Offer
- Preferential Nomination
- Php 0 and below
- Php (0,5000]
- Php (5000,10000]
- Php (10000,15000]
- Php (15000,20000]
- Php (20000,25000]

- Php (25000,30000]
- Php (30000,32000]
- Offered and Nominated Capacity

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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