

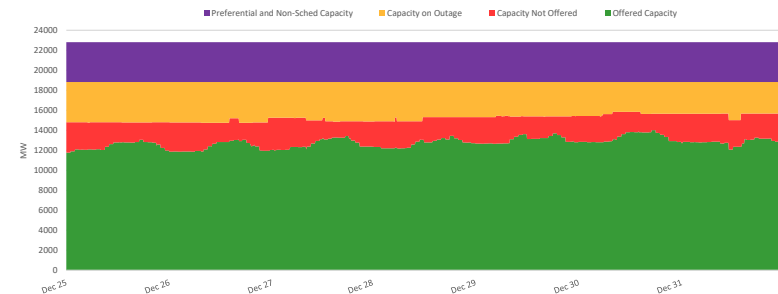
PEMC MARKET ASSESSMENT HIGHLIGHTS

- The average demand and the reserve schedule, recorded at 10,706 MW during the week of 25 - 31 Dec 2023, was lower than the previous week at 11,647 MW and higher than the same week last year at 9,267 MW.
- The average effective supply during the week was 11,429 MW, lower than the 12,197 MW of the previous week and higher than the 10,282 MW during the same week last year. Ramping limitations were considered in the calculation of the effective supply.
 - The capacity on outage averaged at 3,573 MW, lower than last week's 3,661 MW. In terms of capacity on outage by plant type, about 61% of the 3,573 MW involved Coal Plants, while in terms of category, about 65% were Forced Outages.
- As a result, an average supply margin of 724 MW was observed during the week, which is higher by about 31% relative to the previous week and lower by about 28.67% in comparison with the same week last year. The minimum supply margin was 279.77 MW on 27 December 2023 21:05h. The average supply margin was 662.56 MW at peak intervals and 748.25 MW at off-peak intervals.
- Correspondingly, average GWAP was recorded at only PHP 3,786/MWh from PHP 5,549/MWh last week. This is lower than the PHP3,859/MWh during the same week last year. Administered Prices were used on the SO initiated market intervention on December 27, 2023 (17:55h to 18:30h) in Visayas.
 - No secondary price cap was imposed for this week
- The top 5 participant groups accounted for about 81% of the offered capacity. The Herfindahl-Hirschman Index (HHI) by participant group indicated 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 90.48% of the time)
 - STA RITA NGPP (about 84.57% of the time)
 - ILIJAN NGPP (about 57.69% of the time)
 - MASINLOC CFTPP (about 48.12% of the time)
 - SUAL CFTPP (about 41.37% of the time)
- Based on the MMS Solution, the congested equipment during the week were –
 - 138kV Samboan-Amlan Line1 (about 25.8% of the time)
 - 230 kV Tabango_Daan Bantayan (about 2.3% of the time)
 - Calaca_Transformer 1 (about 0.25% of the time)
- OPA_ANALYSIS
 - The capacity offered by coal plants was higher than that of the previous week due to lower outages, but it was observed that coal plants have lower dispatch during the week.
 - On December 25, hydro plants offered a capacity of around 300 MW, and on December 26, 27, and 29, around 180 MW at a price range of Php 25,000/MWh to Php 30,000/MWh.
 - Natural gas plants offered lower capacity due to higher outages compared to previous week.
 - The lowest nomination for solar plants was recorded on December 27, while the highest was recorded on December 28..
 - The highest nomination for wind plants was recorded on December 25, and the highest was on December 31.
- IEMOP MARKET SYSTEMS ADVISORY
 - SO-initiated Market Intervention on December 27, 2023 (17:55h to 18:30h) in Visayas due to implementation of MLD to prevent overloading of Amlan-Samboan 138kV Line 1.

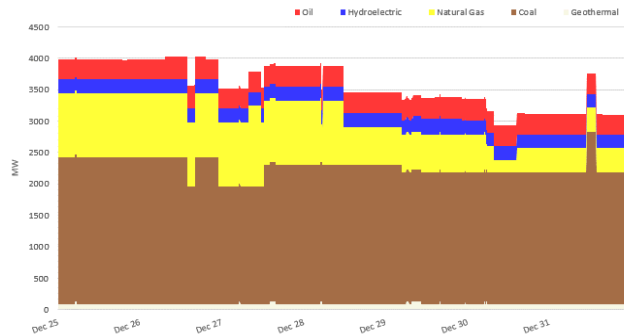
SUMMARY (PRICE, SUPPLY, DEMAND AND RESERVE SCHEDULE)

| Particulars | | 25 - 31 Dec 2023 | Previous Week (18 - 24 Dec 2023) | Same Week, Previous Year (26 Dec - 01 Jan 2023) | Percent Change From | |
|--------------------------------|-----|------------------|-----------------------------------|---|---------------------|----------------------|
| | | | | | Previous Week | Same Week, Prev Year |
| GWAP (PHP/MWh) | max | 30,564.494 | 31,987.255 | 13,651.376 | -4.45% | 123.89% |
| | min | -49.306 | -0.986 | -9,727.931 | -4.9K% | 99.49% |
| | ave | 3,785.572 | 5,547.709 | 3,858.737 | -31.76% | -1.90% |
| Effective Supply (MW) | max | 13,816.687 | 14,344.290 | 11,939.973 | -3.68% | 15.72% |
| | min | 9,262.670 | 9,841.637 | 8,238.554 | -5.88% | 12.43% |
| | ave | 11,429.219 | 12,197.237 | 10,281.640 | -6.30% | 11.16% |
| System Demand (MW) | max | 11,878.710 | 13,079.170 | 10,172.640 | -9.18% | 16.77% |
| | min | 7,491.320 | 8,125.810 | 6,283.210 | -7.81% | 19.23% |
| | ave | 9,721.407 | 10,699.052 | 8,443.221 | -9.14% | 15.14% |
| Demand + Reserve Schedule (MW) | max | 13,122.520 | 13,992.190 | 11,050.920 | -6.22% | 18.75% |
| | min | 8,468.130 | 9,139.260 | 7,085.210 | -7.34% | 19.52% |
| | ave | 10,705.642 | 11,646.890 | 9,267.165 | -8.08% | 15.52% |
| Supply Margin (MW) | max | 1,312.185 | 885.481 | 1,590.855 | 48.19% | -17.52% |
| | min | 279.766 | 32.665 | 406.752 | 756.47% | -31.22% |
| | ave | 723.578 | 550.509 | 1,014.475 | 31.44% | -28.67% |

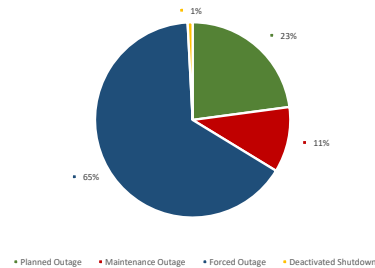
CAPACITY PROFILE



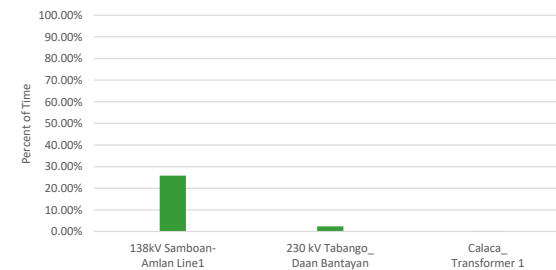
CAPACITY ON OUTAGE BY PLANT TYPE



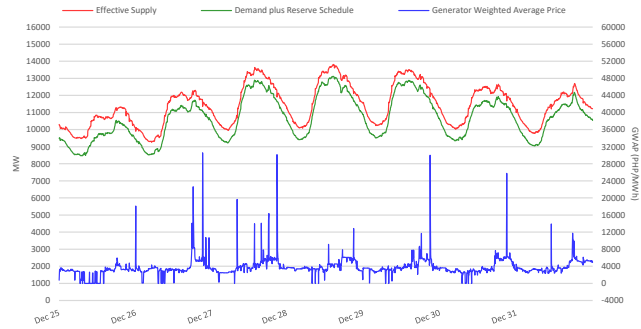
CAPACITY ON OUTAGE BY OUTAGE CATEGORY



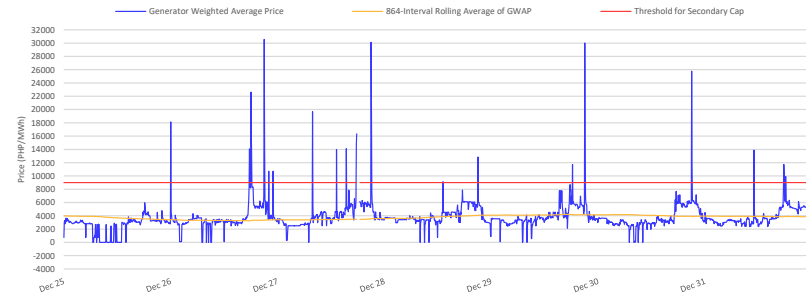
RTD CONGESTION



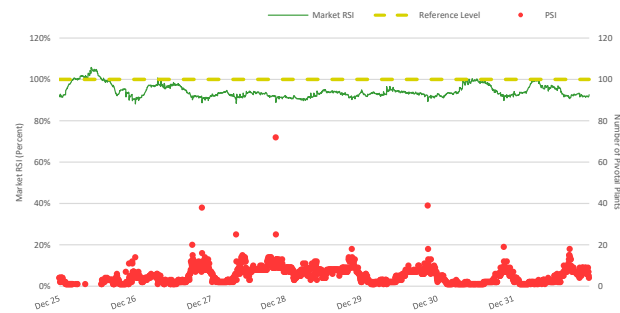
SUPPLY, DEMAND AND PRICE



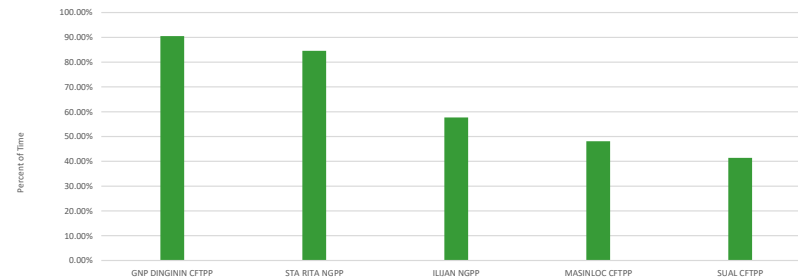
GENERATOR WEIGHTED AVERAGE PRICE



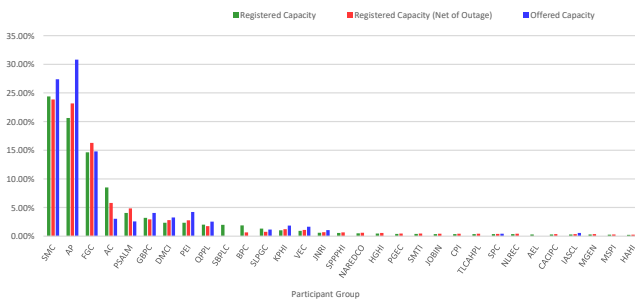
MARKET RSI VS PIVOTAL PLANTS



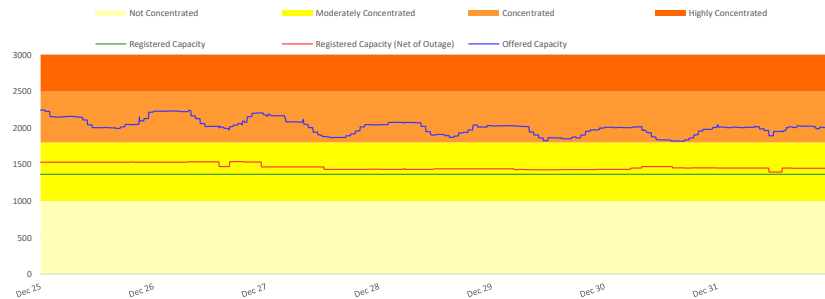
PSI



MARKET SHARE

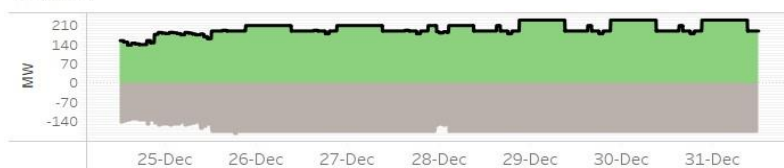


HERFINDAHL-HIRSCHMAN INDEX

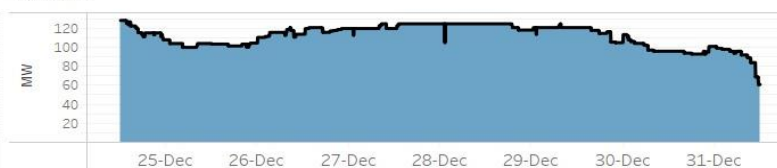


OFFER PATTERN ANALYSIS

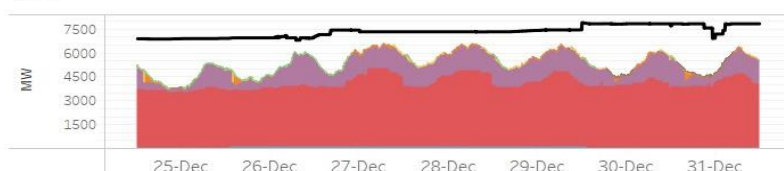
BATTERY



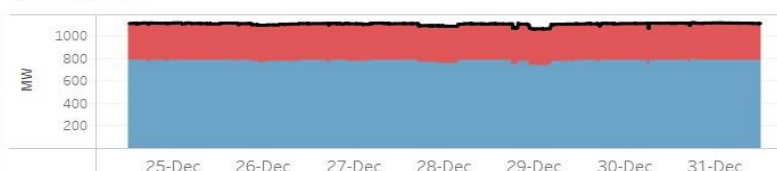
BIOFUEL



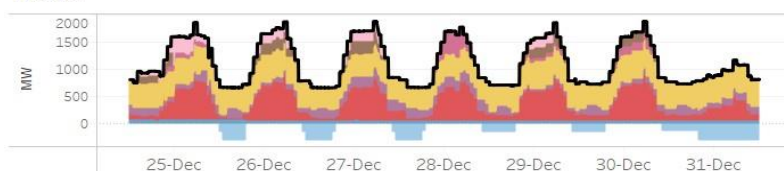
COAL



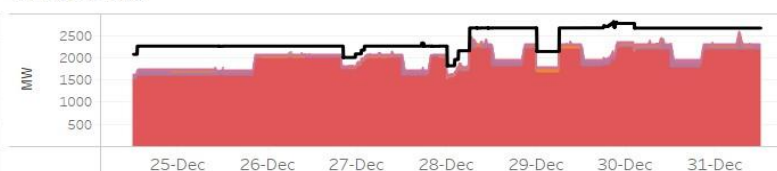
GEOTHERMAL



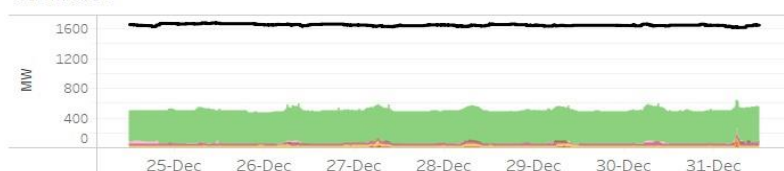
HYDRO



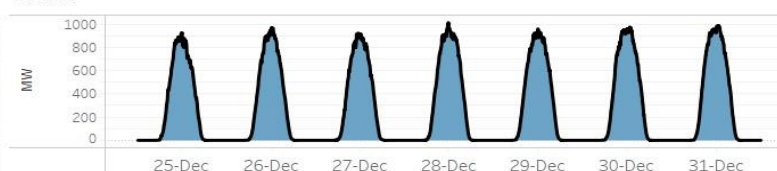
NATURAL GAS



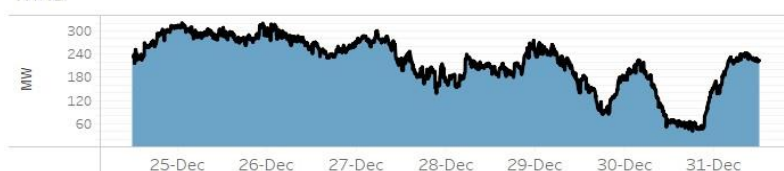
OIL-BASED



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.

DISCLAIMER: The information contained in this document is based on the available electricity spot market data. The same information is subject to change as updated figures come in. As such, the PEMC does not make any representation or warranty as to the completeness of this information. The PEMC likewise accepts no responsibility or liability whatsoever for any loss or cost incurred by a reader arising from, or in relation to, any conclusion or assumption derived from the information found herein.