

## PEMC MARKET ASSESSMENT HIGHLIGHTS

- The average demand and the reserve schedule, recorded at 12,164 MW during the week of 23 - 29 Oct 2023, was higher than the previous week at 11,937 MW and higher than the same week last year at 10,925 MW.
- The average effective supply during the week was 13,006 MW, higher than the 12,892 MW of the previous week and higher than the 11,367 MW during the same week last year. Ramping limitations were considered in the calculation of the effective supply.
  - The capacity on outage averaged at 1,942 MW, lower than last week's 2,840 MW. About 43% of the 1,942 MW involved Coal plants, while in terms of category, about 51% were Planned Outages.
- As a result, an average supply margin of 842 MW was observed during the week, which is lower by about 11.844% relative to the previous week and higher by about 91% in comparison with the same week last year. The thinnest supply margin based on MMS solution was 126.38 MW on 26 October 2023 21:05. The average supply margin was 818.38 MW at peak intervals and 859.49 MW at off-peak intervals.
- Correspondingly, average GWAP was recorded at PHP 3,858/MWh from PHP 5,083/MWh last week. This is lower than the PHP7,438/MWh during the same week last year. Administered Prices were used on the MO initiated market intervention on October 29, 2023 (0005H-0010H).
  - 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 –
  - GNP DINGININ CFTPP (about 91.77% of the time)
  - MASINLOC CFTPP (about 72.37% of the time)
  - ILJUAN NGPP (about 67.91% of the time)
  - STA RITA NGPP (about 66.22% of the time)
  - MARIVELES CFTPP (about 55.31% of the time)
- Based on the MMS Solution, the congested equipment during the week were:
  - 138kV Maasin-Ubay Line 1 (about 26.2% of the time)
  - 138kV Samboan-Amlan Line1 (about 8.9% of the time)
  - Duhat\_Transformer 2 (0.1% of the time)
  - Cebu\_Transformer 3 (0.05% of the time)

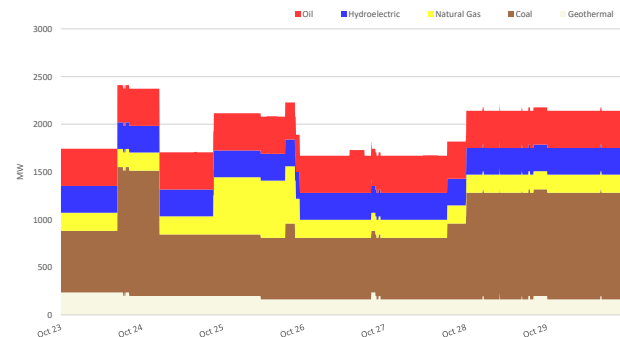
### OPA\_ANALYSIS

- Battery had some capacity offered at price range of Php 0/MWh and below on afternoon peak of October 23 to 27. There was also an observed sudden decrease in offered capacity on October 28.
- Biofuel were purely in preferential nomination starting October 26.
- Coal plants offered higher capacity compare to previous week due to lower outages.
- Hydro plants offered lower capacity on offpeak of October 25 and 26 due to plant outages and pumping of Kalayaan PSPP.
- Natural gas plants had higher offered capacity relative to previous week due to lower outages.
- Solar plants' lowest nomination was recorded on October 23 and highest on October 29.
- Wind plants' lowest nomination was recorded on October 25 and highest on October 29.

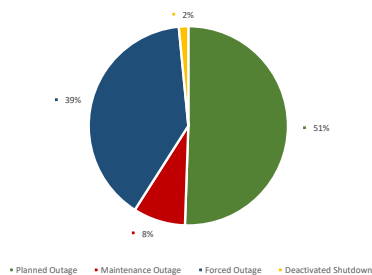
### ITEMOP MARKET SYSTEMS ADVISORY

- MO initiated market intervention was declared for RTD runs 0005H-0010H, October 29, 2023 for all regions due to MPI failure.

## CAPACITY ON OUTAGE BY PLANT TYPE



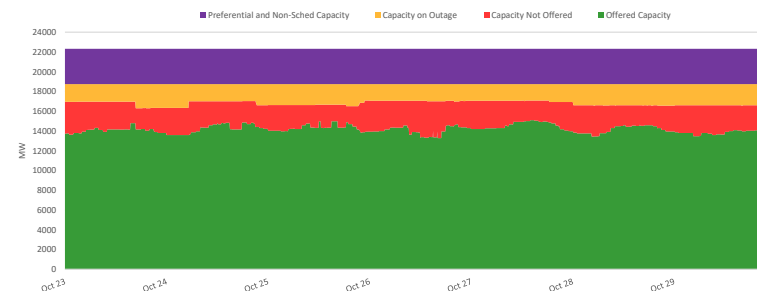
## CAPACITY ON OUTAGE BY OUTAGE CATEGORY



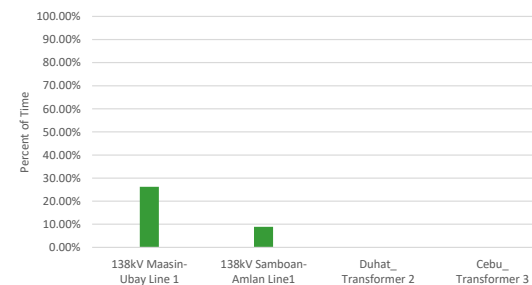
## SUMMARY (PRICE, SUPPLY, DEMAND AND RESERVE SCHEDULE)

Particulars		23 - 29 Oct 2023	Previous Week (16 - 22 Oct 2023)	Same Week, Previous Year (24 - 30 Oct 2022)	Percent Change From	
					Previous Week	Same Week, Prev Year
GWAP (PHP/MWh)	max	31,298.534	28,483.408	33,181.181	9.88%	-5.67%
	min	-1.001	-5,619.320	-0.968	99.98%	-3.41%
	ave	3,858.228	5,083.077	7,438.049	-24.10%	-48.13%
Effective Supply (MW)	max	15,431.756	14,925.680	14,182.568	3.39%	8.81%
	min	10,756.095	10,746.620	7,601.229	0.09%	41.50%
	ave	13,006.225	12,891.926	11,366.682	0.89%	14.42%
System Demand (MW)	max	13,965.480	13,671.990	13,092.650	2.15%	6.67%
	min	9,086.000	8,922.560	6,346.080	1.83%	43.17%
	ave	11,516.421	11,422.938	10,102.024	0.82%	14.00%
Demand + Reserve Schedule (MW)	max	14,882.120	14,170.660	14,099.080	5.02%	5.55%
	min	9,545.400	9,526.200	6,925.420	0.20%	37.83%
	ave	12,164.008	11,936.555	10,924.755	1.91%	11.34%
Supply Margin (MW)	max	1,373.619	1,470.072	1,007.361	-6.56%	36.36%
	min	126.380	279.524	2.355	-54.79%	5k %
	ave	842.216	955.372	441.927	-11.84%	90.58%

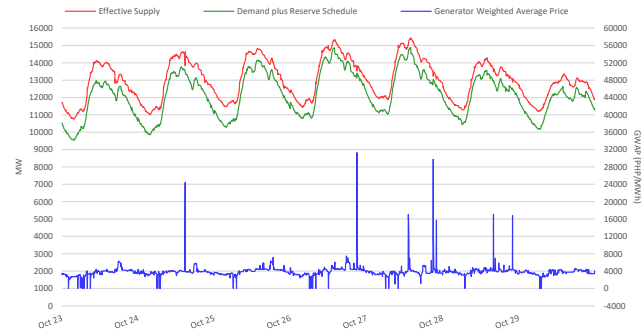
## CAPACITY PROFILE



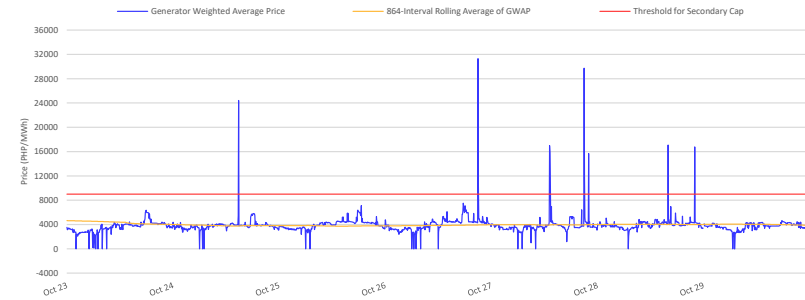
## RTD CONGESTION



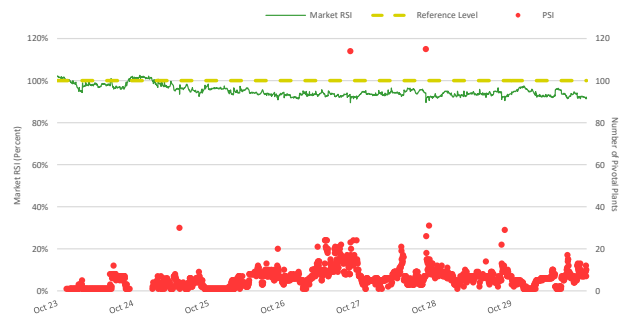
## SUPPLY, DEMAND AND PRICE



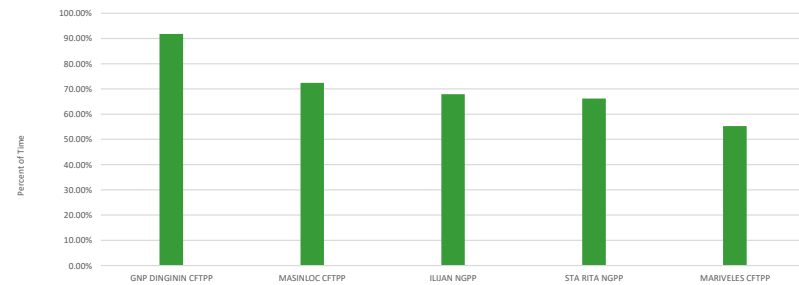
## GENERATOR WEIGHTED AVERAGE PRICE



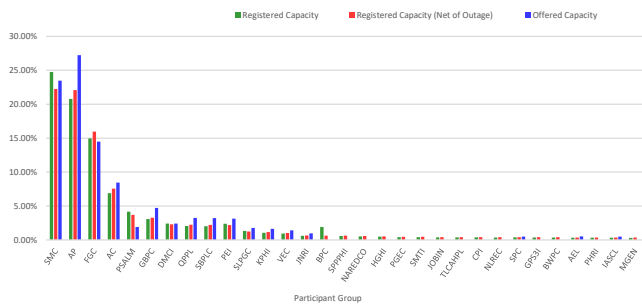
## MARKET RSI VS PIVOTAL PLANTS



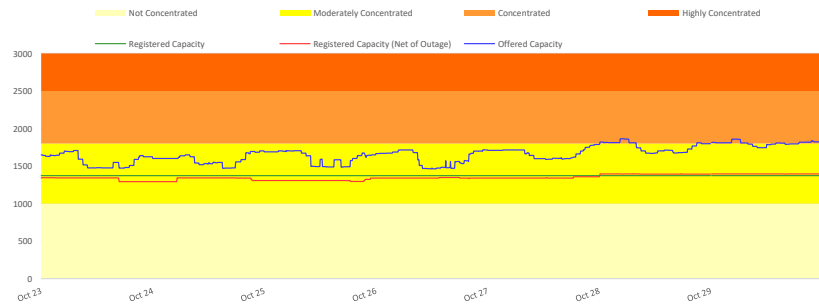
## PSI



## MARKET SHARE

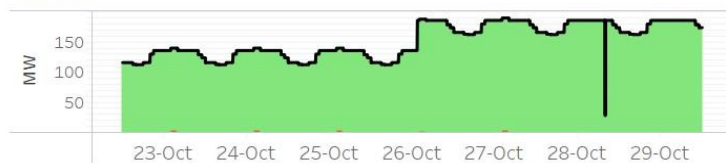


## HERFINDAHL-HIRSCHMAN INDEX

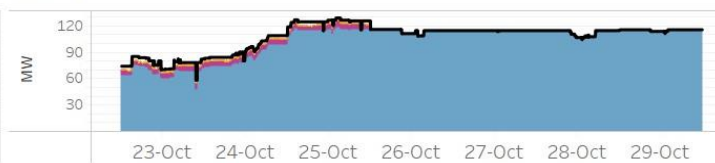


**OFFER PATTERN ANALYSIS**

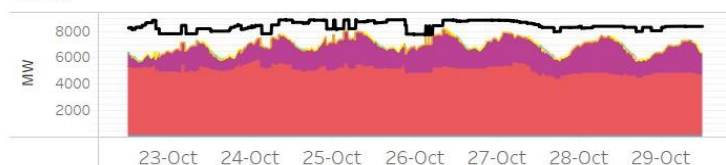
**BATTERY**



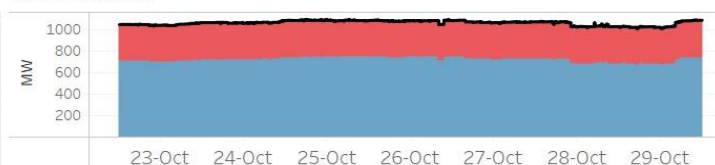
**BIOFUEL**



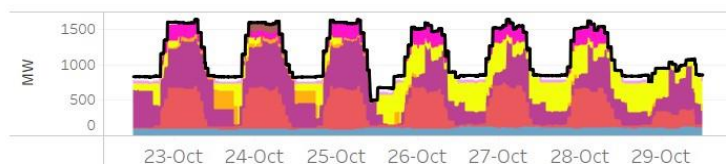
**COAL**



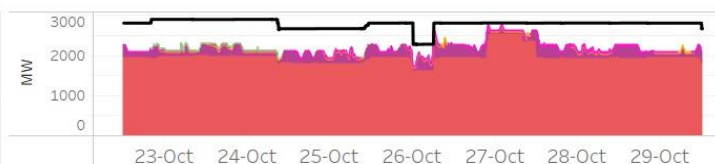
**GEOTHERMAL**



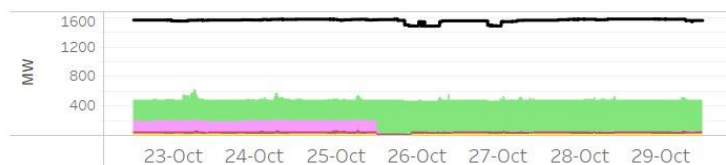
**HYDRO**



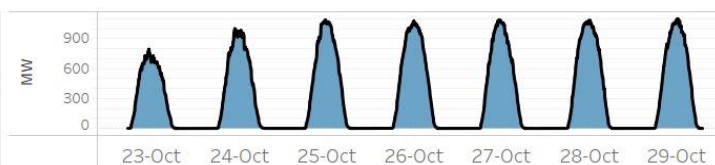
**NATURAL GAS**



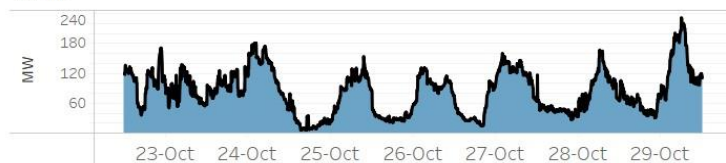
**OIL-BASED**



**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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