

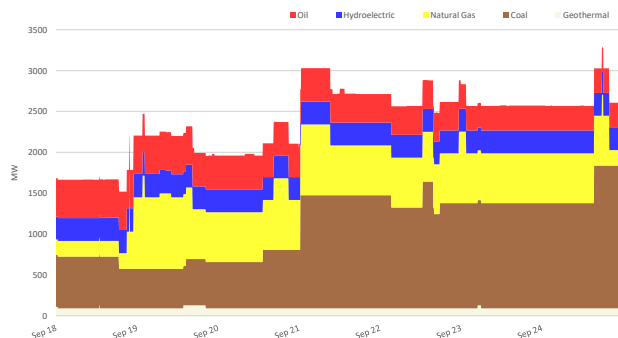
## PEMC MARKET ASSESSMENT HIGHLIGHTS

- The average demand and the reserve schedule, recorded at 12,421 MW during the week of 18 - 24 Sep 2023, was higher than the previous week at 12,055 MW and higher than the same week last year at 11,523 MW.
- The average effective supply during the week was 13,065 MW, higher than the 12,903 MW of the previous week and higher than the 11,923 MW during the same week last year. Ramping limitations were considered in the calculation of the effective supply.
  - The capacity on outage averaged at 2,378 MW, higher than last week's 2,006 MW. About 43% of the 2,378 MW involved Coal plants, while in terms of category, about 58% were Forced Outages.
- As a result, an average supply margin of 644 MW was observed during the week, which is lower by about 24.067% relative to the previous week and higher by about 62% in comparison with the same week last year. The thinnest supply margin based on MMS solution was 95.77 MW on 20 September 2023 18:50 . The average supply margin was 817.63 MW at peak intervals and 721.35 MW at off-peak intervals.
- Correspondingly, average GWAP was recorded at PHP 6,556/MWh from PHP 4,587/MWh last week. This is lower than the PHP8,543/MWh during the same week last year. Administered Prices will be used on System Operator (SO) initiated Market Intervention on September 18, 2023 (12:55-13:05) for Luzon, Visayas and Mindanao and September 23, 2023 (13:10-13:45) for Visayas and Mindanao.
  - No secondary price cap was imposed for this week
- The top 5 participant groups accounted for about 79% 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 –
  - ILJAN NGPP (about 81.65% of the time)
  - GNP DINGININ CFTPP (about 74.65% of the time)
  - MASINLOC CFTPP (about 72.02% of the time)
  - STA RITA NGPP (about 60.86% of the time)
  - SUAL CFTPP (about 60.71% of the time)
- Based on the MMS Solution, the top 5 congested equipment during the week were –
  - 138kV Maasin-Ubay Line 1 (about 12.4% of the time)
  - 138kV Samboan-Amlan Line1 (about 4.6% of the time)
  - Batangas\_Transformer 1 (0.99% of the time)
  - Duhat\_Transformer 1 (0.55% of the time)
  - 230kV Daan Bantayan-Tabango Line 1 (0.3% of the time)
- OPA\_ANALYSIS
  - Battery had some capacity offered at price range of Php 0/MWh and below on afternoon peak of September 19, 20 and 22.
  - Biofuel had lower nomination on September 18 to 19.
  - Coal plants had lower offered capacity starting from the evening of September 21 due to plant outage.
  - Hydro plants had observed lower offer prices on September 18.
  - Solar plants' highest peak nomination was recorded on September 19 and lowest on September 23
  - Wind plants' lowest nomination was recorded on September 21 and highest on September 24.

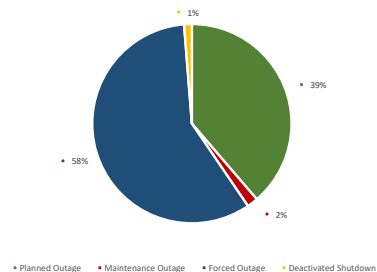
## IEMOP MARKET SYSTEMS ADVISORY

- SO initiated Market Intervention due to unimplementable RTD on September 18, 2023 (12:55-13:05) for Luzon, Visayas and Mindanao and September 23, 2023 (13:10-13:45) for Visayas and Mindanao.

## CAPACITY ON OUTAGE BY PLANT TYPE



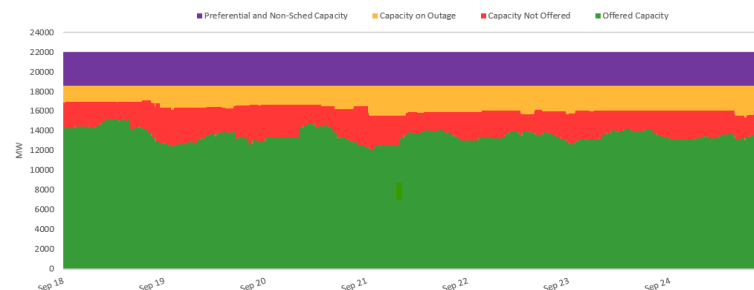
## CAPACITY ON OUTAGE BY OUTAGE CATEGORY



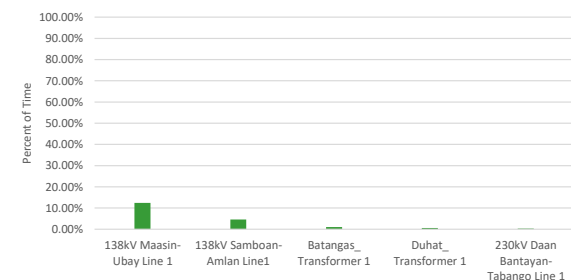
## SUMMARY (PRICE, SUPPLY, DEMAND AND RESERVE SCHEDULE)

Particulars		18 - 24 Sep 2023	Previous Week (11 - 17 Sep 2023 )	Same Week, Previous Year (19 - 25 Sep 2022)	Percent Change From	
					Previous Week	Same Week, Prev Year
GWAP (PHP/MWh)	max	27,818.724	32,841.319	33,521.825	-15.294%	-17.013%
	min	0.000	0.000	-0.008	-	100.000%
	ave	6,555.691	4,586.805	8,542.608	42.925%	-23.259%
Effective Supply (MW)	max	15,528.375	15,243.958	13,806.029	1.866%	12.475%
	min	10,815.084	10,902.649	9,209.148	-0.803%	17.438%
	ave	13,064.552	12,902.900	11,922.982	1.253%	9.575%
System Demand (MW)	max	14,318.430	13,966.790	12,692.170	2.518%	12.813%
	min	9,158.830	9,474.920	7,307.550	-3.336%	25.334%
	ave	11,743.798	11,600.960	10,592.497	1.231%	10.869%
Demand + Reserve Schedule (MW)	max	15,158.910	14,579.308	13,671.555	3.976%	10.879%
	min	9,819.430	9,798.370	8,100.020	0.215%	21.227%
	ave	12,420.771	12,055.075	11,523.280	3.034%	7.789%
Supply Margin (MW)	max	1,333.913	1,638.826	1,225.317	-18.606%	8.863%
	min	95.775	189.645	-1.448	-49.498%	6k%
	ave	643.782	847.825	397.521	-24.067%	61.949%

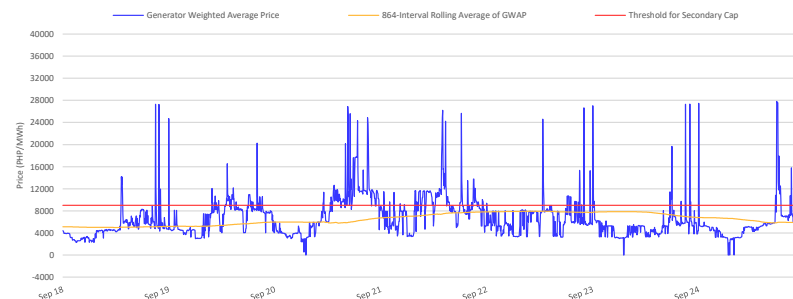
## CAPACITY PROFILE



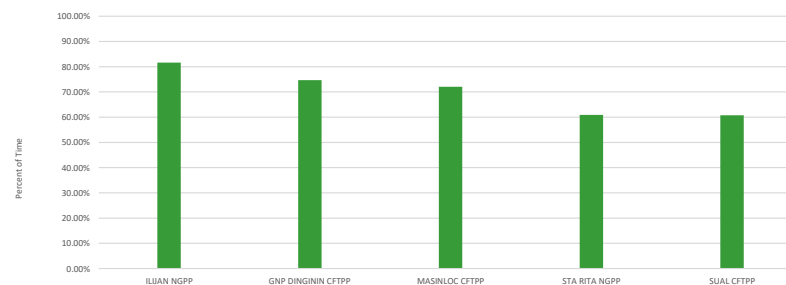
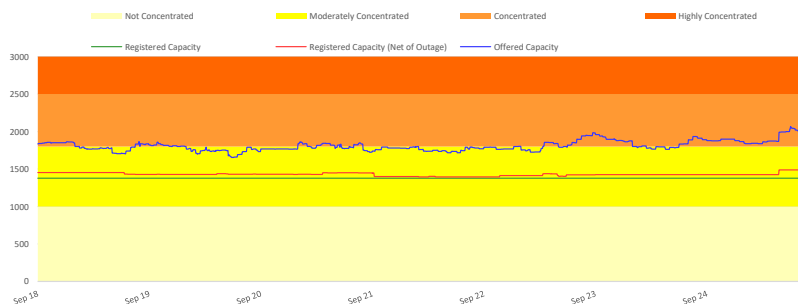
## RTD CONGESTION



### GENERATOR WEIGHTED AVERAGE PRICE



**PSI**

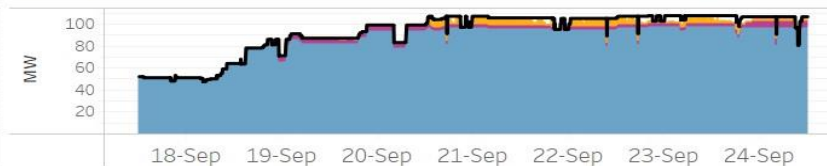
**HERFINDAHL-HIRSCHMAN INDEX**

**OFFER PATTERN ANALYSIS**

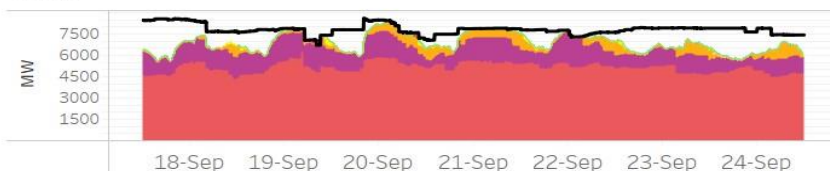
**BATTERY**



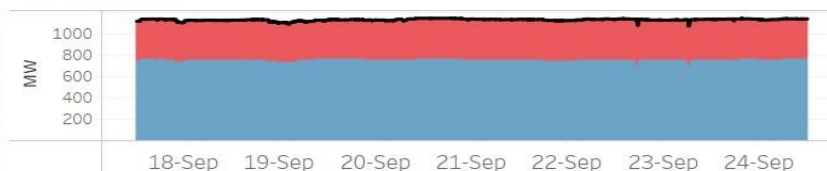
**BIOFUEL**



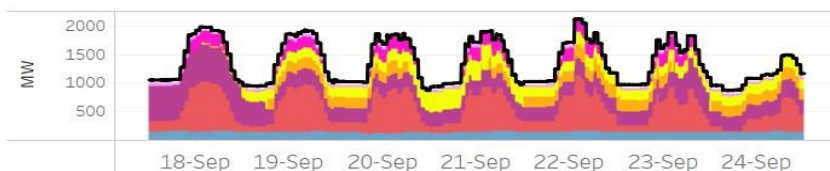
**COAL**



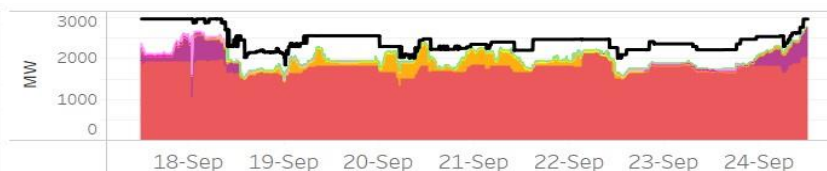
**GEOHERMAL**



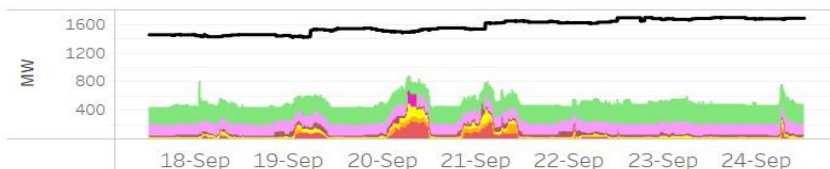
**HYDRO**



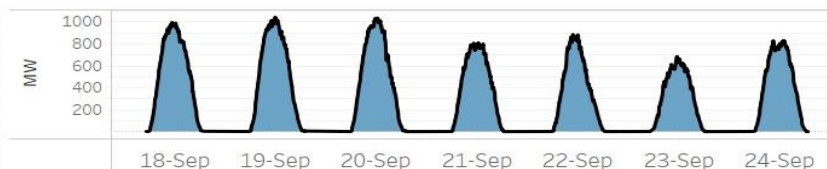
**NATURAL GAS**



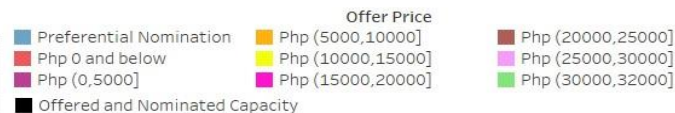
**OIL-BASED**



**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.