

## PEMC MARKET ASSESSMENT HIGHLIGHTS

- The average demand and the reserve schedule, recorded at 1,926 MW during the week of 17 - 23 Jul 2023, was higher than the previous week at 1,923 MW.
- The average effective supply during the week was 2,108 MW, higher than the 2,106 MW of the previous week. Ramping limitations were considered in the calculation of the effective supply.
  - The capacity on outage averaged at 307 MW, higher than last week's 303 MW. About 61% of the 307 MW involved Coal plants, while in terms of category, about 81% were Maintenance Outages.
- As a result, an average supply margin of 182 MW was observed during the week, which is lower by about 0.249% relative to the previous week. The thinnest supply margin based on MMS solution was 59.2 MW on 19 July 2023 10:25. The average supply margin was 167.15 MW at peak intervals and 193.97 MW at off-peak intervals.
- Correspondingly, average GWAP was recorded at PHP 3,707/MWh from PHP 3,968/MWh last week.
  - No secondary price cap was imposed for this week
- The top 5 participant groups accounted for about 72% of the offered capacity. The Herfindahl-Hirschman Index (HHI) by participant group indicated moderately concentrated market based on the offered and registered capacities.
- The top 5 pivotal plants during the week were –
  - GN POWER KAUSWAGAN CFTPP (about 73.56% of the time)
  - MALITA CFTPP (about 67.31% of the time)
  - SARANGANI CFTPP (about 47.37% of the time)
  - THERMA SOUTH CFTPP (about 41.82% of the time)
  - FDC MISAMIS CFTPP (about 26.69% of the time)
- Based on the MMS Solution, no congested equipment during the week.
- Offer Pattern Analysis
  - Biofuel recorded higher nomination from July 18 to July 22 than the rest of the week.
  - Coal plants recorded lower capacity starting July 19.
  - Geothermal plants recorded lower effective capacity than its offered capacity in the early morning of July 23.
  - Hydro and solar plants recorded higher capacity towards the end of the week.

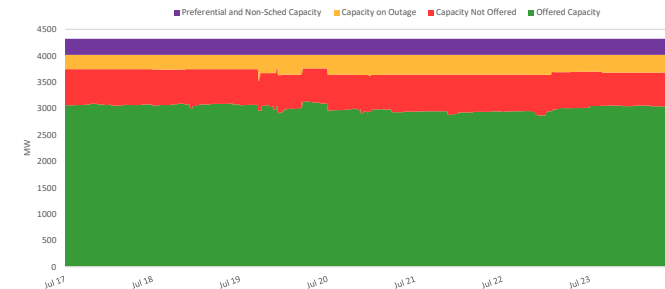
## IEMOP MARKET SYSTEMS ADVISORY

- No IT-related issue was advised in IEMOP's market systems from 17 - 23 Jul 2023.

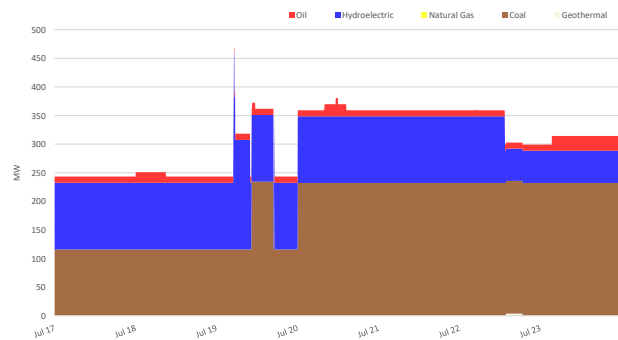
## SUMMARY (PRICE, SUPPLY, DEMAND AND RESERVE SCHEDULE)

Particulars		17 - 23 Jul 2023	Previous Week (10 - 16 Jul 2023)	Percent Change
GWAP (PHP/MWh)	max	30,295.991	24,279.185	24.78%
	min	-0.010	-0.010	0.00%
	ave	3,706.924	3,967.687	-6.57%
Effective Supply (MW)	max	2,533.411	2,556.099	-0.89%
	min	1,706.403	1,704.973	0.08%
	ave	2,108.403	2,105.690	0.13%
System Demand (MW)	max	2,275.920	2,312.660	-1.59%
	min	1,379.380	1,375.650	0.27%
	ave	1,805.518	1,804.850	0.04%
Demand + Reserve Schedule (MW)	max	2,395.920	2,427.660	-1.31%
	min	1,499.380	1,500.650	-0.08%
	ave	1,926.248	1,923.080	0.16%
Supply Margin (MW)	max	308.818	254.132	21.52%
	min	59.201	97.505	-39.28%
	ave	182.155	182.610	-0.25%

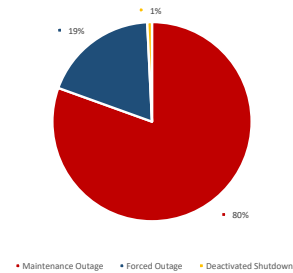
## CAPACITY PROFILE



## CAPACITY ON OUTAGE BY PLANT TYPE



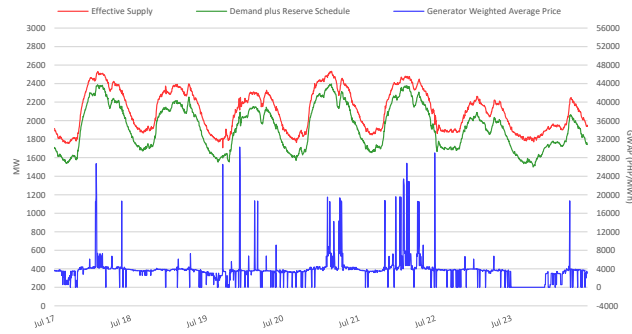
## CAPACITY ON OUTAGE BY OUTAGE CATEGORY



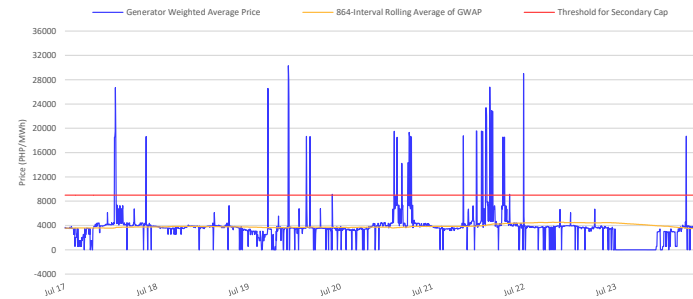
## RTD CONGESTION



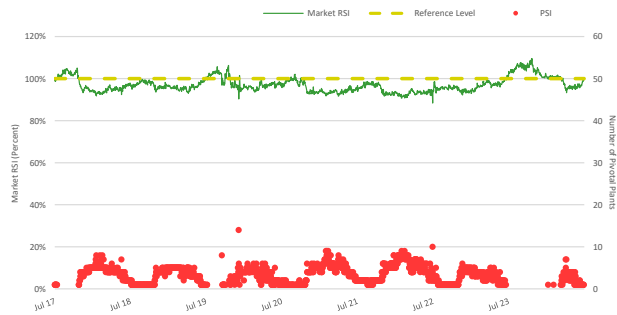
## SUPPLY, DEMAND AND PRICE



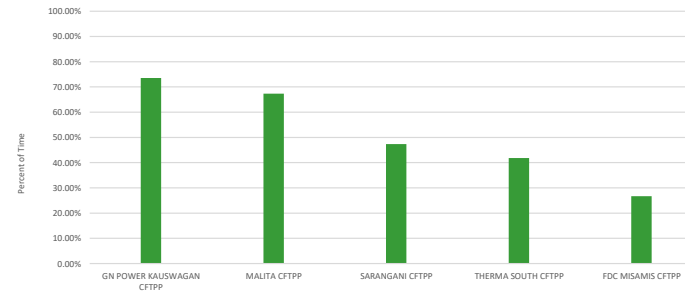
## GENERATOR WEIGHTED AVERAGE PRICE



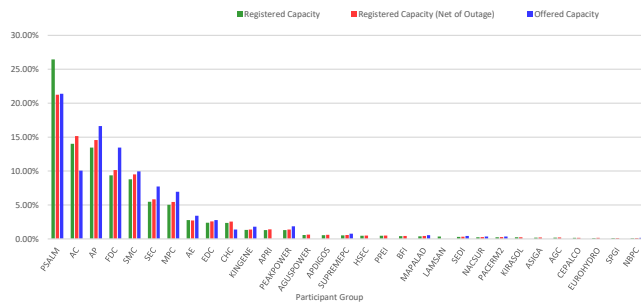
## MARKET RSI VS PIVOTAL PLANTS



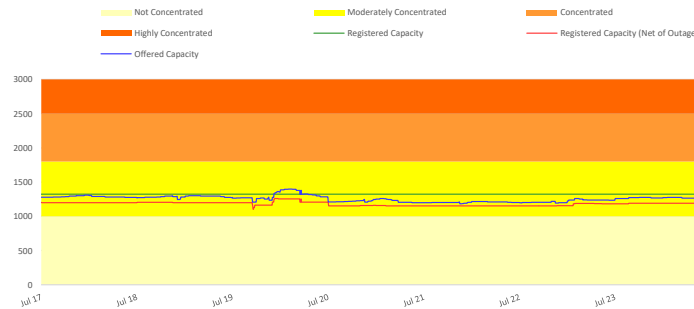
## PSI



## MARKET SHARE

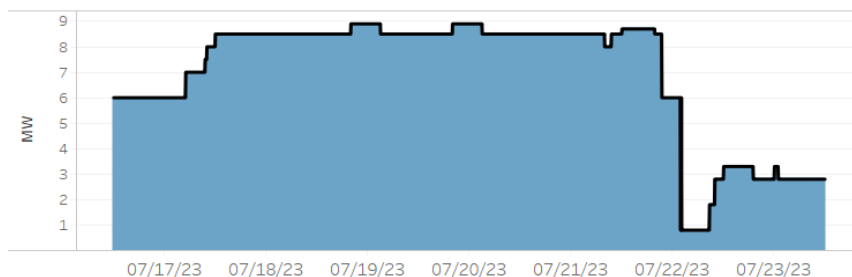


## HERFINDAHL-HIRSCHMAN INDEX

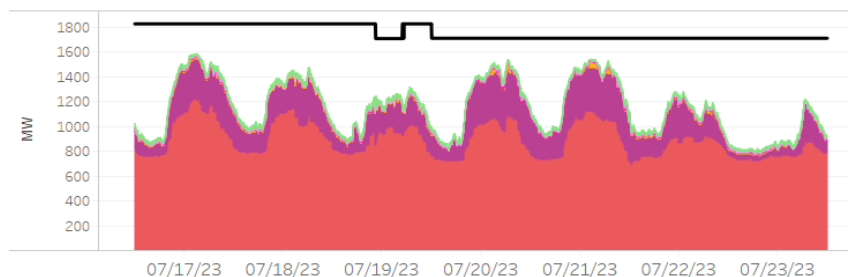


**OFFER PATTERN ANALYSIS**

**BATTERY AND BIOFUEL**



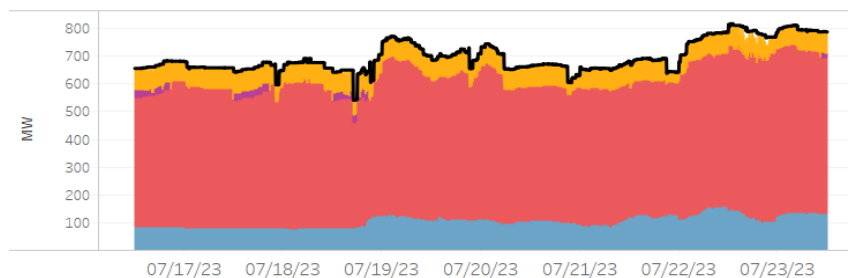
**COAL**



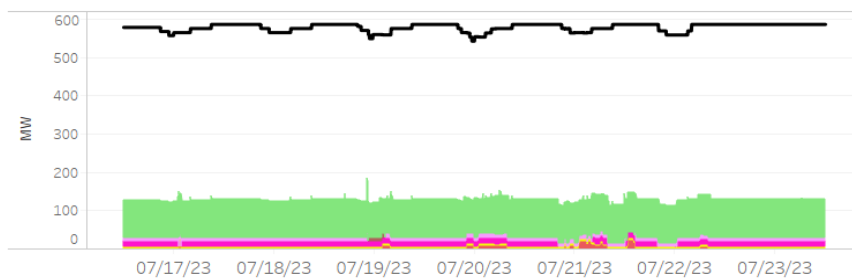
**GEOTHERMAL**



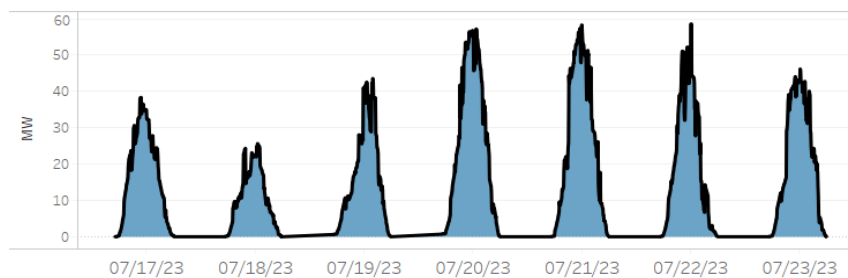
**HYDRO**



**OIL-BASED**



**SOLAR**



■ Preferential Nomination  
■ Php 0 and below

■ Php (0,5000]  
■ Php (5000,10000]

■ Php (10000,15000]  
■ Php (15000,20000]

Offer Price

■ 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.

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