

PEMC MARKET ASSESSMENT HIGHLIGHTS

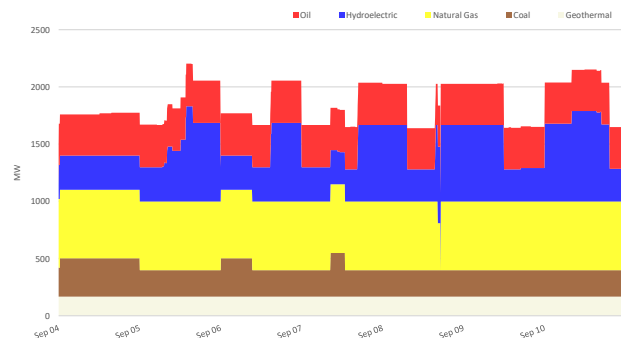
- The average demand and the reserve schedule, recorded at 12,148 MW during the week of 04 - 10 Sep 2023, was higher than the previous week at 11,603 MW and higher than the same week last year at 11,898 MW.
- The average effective supply during the week was 12,888 MW, higher than the 12,504 MW of the previous week and higher than the 12,207 MW during the same week last year. Ramping limitations were considered in the calculation of the effective supply.
 - The capacity on outage averaged at 1,862 MW, lower than last week's 1,878 MW. About 32% of the 1,862 MW involved Natural Gas plants, while in terms of category, about 66% were Forced Outages.
- As a result, an average supply margin of 740 MW was observed during the week, which is lower by about 17.778% relative to the previous week and higher by about 139% in comparison with the same week last year. The minimum supply margin was 253.73 MW on 07 September 2023 20:05. The average supply margin was 666.65 MW at peak intervals and 798.34 MW at off-peak intervals.
- Correspondingly, average GWAP was recorded at PHP 4,763/MWh from PHP 3,890/MWh last week. This is lower than the PHP9,180/MWh during the same week last year.
 - 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 moderately concentrated market based on the offered and registered capacities.
- The top 5 pivotal plants during the week were –
 - GNP DINGININ CFTPP (about 97.32% of the time)
 - STA RITA NGPP (about 70.83% of the time)
 - MARIVELES CFTPP (about 36.71% of the time)
 - MASINLOC CFTPP (about 31.55% of the time)
 - SUAL CFTPP (about 30.41% of the time)
- Based on the MMS Solution, the top 5 congested equipment during the week were –
 - 138kV Maasin-Ubay Line 1 (about 31.6% of the time)
 - 230kV Bayambong-Ambuklao Line2(0.45% of the time)
 - San Jose 230kV_Transformer 1 (0.4% of the time)
 - Calbayog_Transformer 1 (0.05% of the time)
 - Daraga_Transformer 3(0.05% of the time)

- Offer Pattern Analysis
 - Battery had some capacity offered at price range of Php 0/MWh and below on afternoon peak of September 6 to 8.
 - Varying nominated capacity from biofuel plants was observed until September 7.
 - Coal plants recorded lowest set of effective supply on 04 September (Monday). It was also observed that a significant capacity (up to 570MW) were offered with a price range of Php 25,000/MWh to Php 30,000/MWh on September 4.
 - Geothermal plants had observed increase in nominated capacity in the evening starting 07 September.
 - Natural gas plants had less offered capacity on the first 2-hours of September 8 due to observed non-offering of maximum capacity.
 - Solar plants' peak nomination on September 4 to 5 was lower than the rest of the week. Highest peak nomination was recorded on September 7.
 - Wind plants' highest nomination was recorded on September 4 then had decreasing trend toward the end of the week.

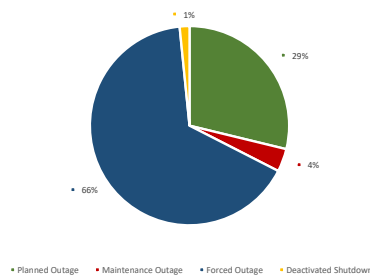
IEMOP MARKET SYSTEMS ADVISORY

- No IT-related issue was advised in IEMOP's market systems from 04 - 10 Sep 2023.

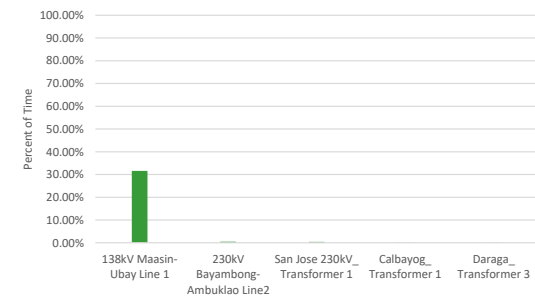
CAPACITY ON OUTAGE BY PLANT TYPE



CAPACITY ON OUTAGE BY OUTAGE CATEGORY



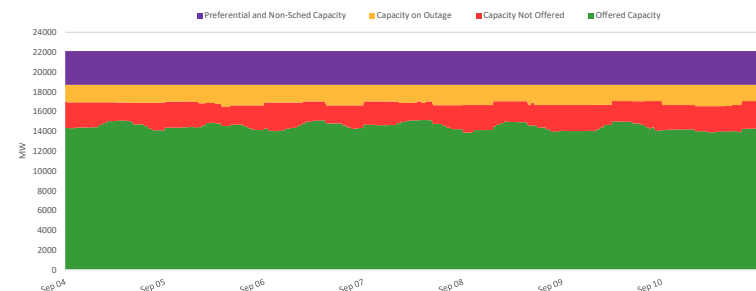
RTD CONGESTION



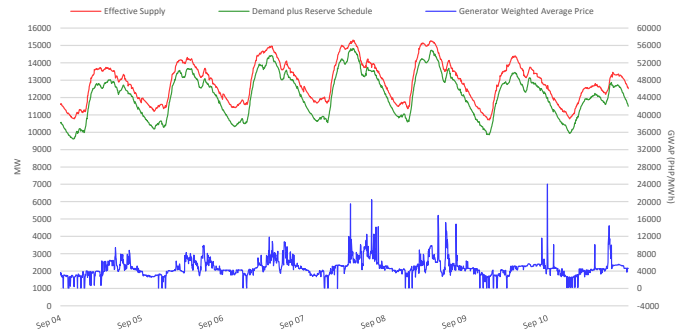
SUMMARY (PRICE, SUPPLY, DEMAND AND RESERVE SCHEDULE)

Particulars		04 - 10 Sep 2023	Previous Week (28 Aug - 03 Sep 2023)	Same Week, Previous Year (05 - 11 Sep 2022)	Percent Change From	
					Previous Week	Same Week, Prev Year
GWAP (PHP/MWh)	max	24,056.278	13,289.189	35,068.500	81.021%	-31.402%
	min	0.000	0.000	87.500	-	-100.000%
	ave	4,763.058	3,889.771	9,180.098	22.451%	-48.115%
Effective Supply (MW)	max	15,307.709	14,709.580	14,422.479	4.066%	6.138%
	min	10,706.502	10,163.694	3,883.512	5.341%	175.691%
	ave	12,888.105	12,503.700	12,206.859	3.074%	5.581%
System Demand (MW)	max	14,064.920	13,030.960	13,587.060	7.935%	3.517%
	min	9,118.010	8,510.960	7,944.720	7.133%	14.768%
	ave	11,596.349	10,884.362	11,037.267	6.541%	5.065%
Demand + Reserve Schedule (MW)	max	14,830.162	14,012.818	14,400.175	5.833%	2.986%
	min	9,608.020	8,969.480	8,919.150	7.119%	7.723%
	ave	12,147.771	11,603.291	11,897.566	4.692%	2.103%
Supply Margin (MW)	max	1,310.474	1,309.049	773.304	0.109%	69.464%
	min	253.732	360.471	-7,881.018	-29.611%	103.220%
	ave	740.334	900.409	309.292	-17.778%	139.364%

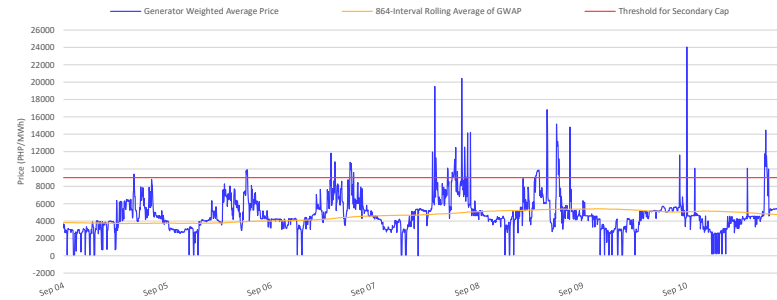
CAPACITY PROFILE



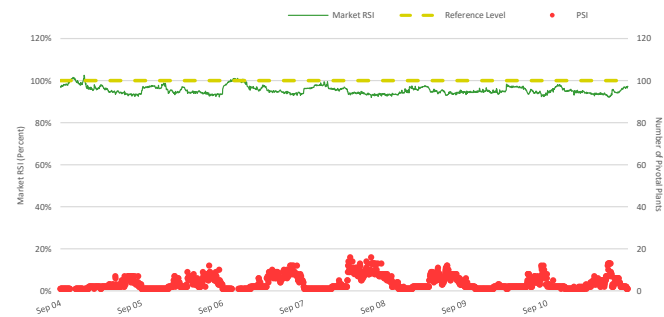
SUPPLY, DEMAND AND PRICE



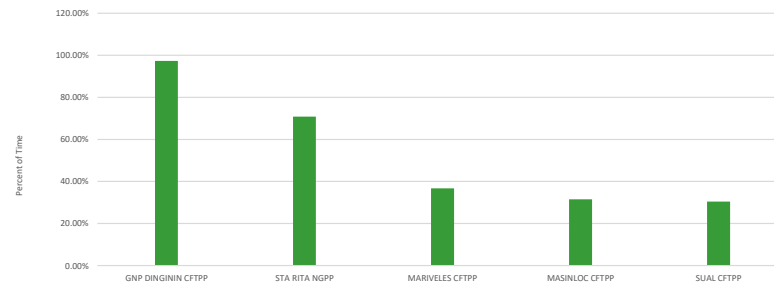
GENERATOR WEIGHTED AVERAGE PRICE



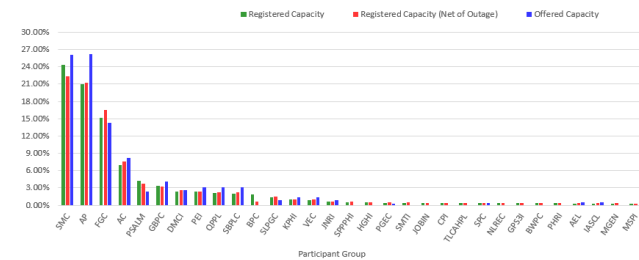
MARKET RSI VS PIVOTAL PLANTS



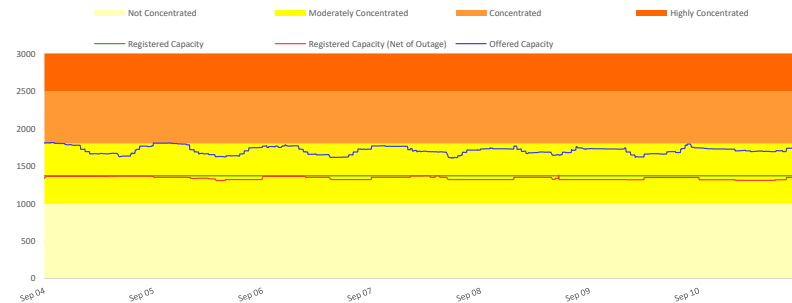
PSI



MARKET SHARE

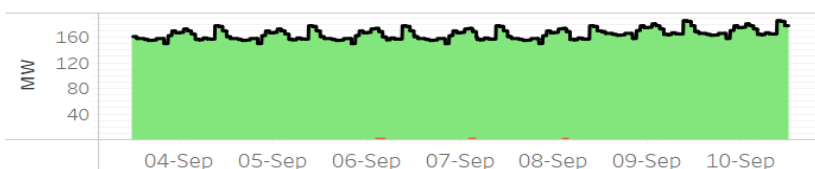


HERFINDAHL-HIRSCHMAN INDEX

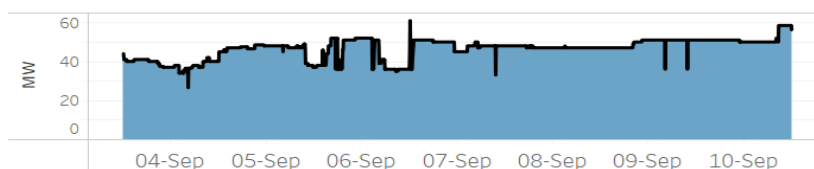


OFFER PATTERN ANALYSIS

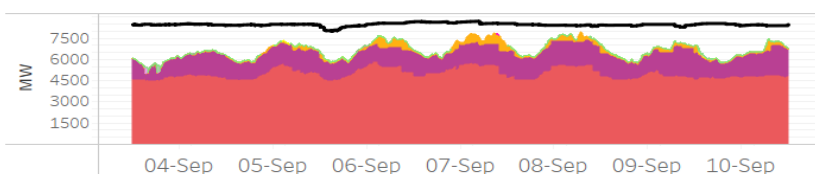
BATTERY



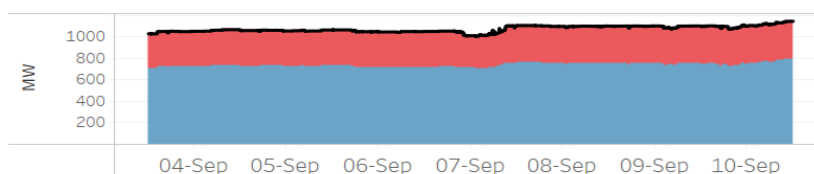
BIOFUEL



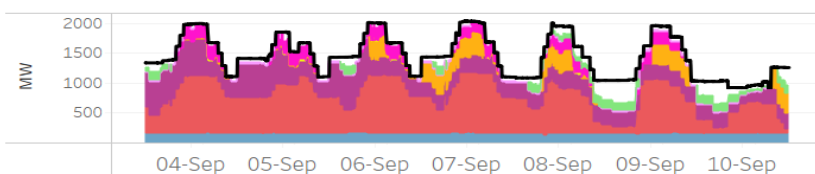
COAL



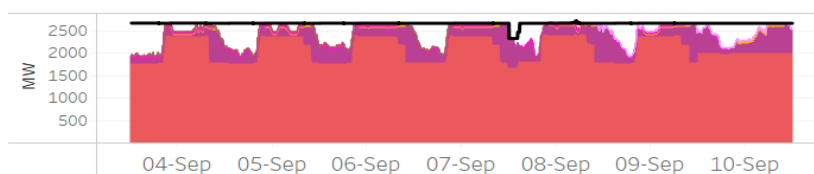
GEOHERMAL



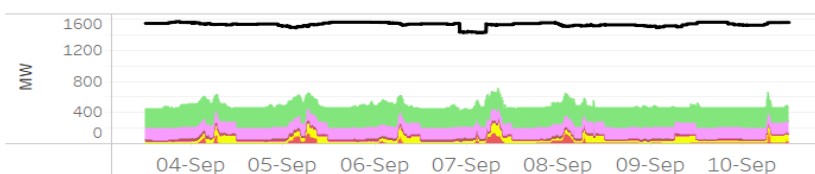
HYDRO



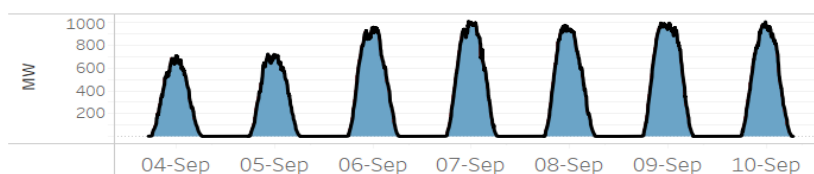
NATURAL GAS



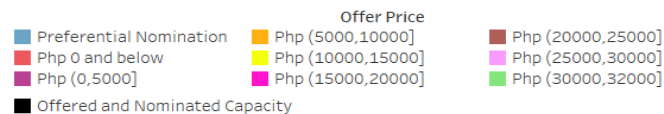
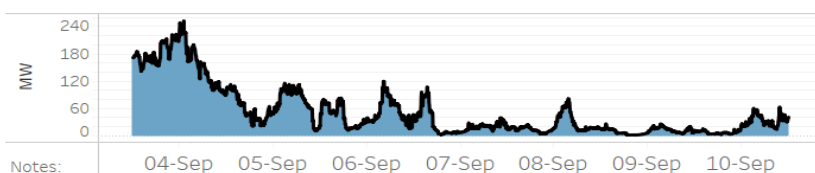
OIL-BASED



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. Relected 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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