

PEMC MARKET ASSESSMENT HIGHLIGHTS

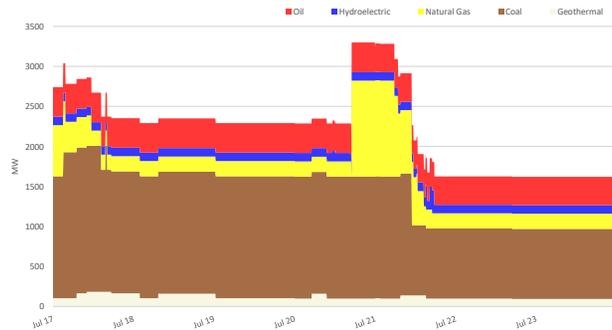
- The average demand and the reserve schedule, recorded at 11,653 MW during the week of 17 - 23 Jul 2023, was lower than the previous week at 11,702 MW and lower than the same week last year at 12,050 MW.
- The average effective supply during the week was 12,493 MW, higher than the 12,471 MW of the previous week and lower than the 12,632 MW during the same week last year. Ramping limitations were considered in the calculation of the effective supply.
 - The capacity on outage averaged at 2,211 MW, lower than last week's 2,530 MW. About 59% of the 2,211 MW involved Coal plants, while in terms of category, about 39% were Forced Outages.
- As a result, an average supply margin of 840 MW was observed during the week, which is higher by about 9% relative to the previous week and higher by about 44% in comparison with the same week last year. The minimum supply margin based on MMS solution was 233.51 MW on 21 July 2023 15:10. The average supply margin was 699.21 MW at peak intervals and 951.39 MW at off-peak intervals.
- Correspondingly, average GWAP was recorded at PHP 4,655/MWh from PHP 5,818/MWh last week. This is lower than the PHP8,816/MWh during the same week last year.
 - No secondary price cap was imposed for this week
- The top 5 participant groups accounted for about 77% 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 93.35% of the time)
 - STA RITA NGPP (about 71.33% of the time)
 - SUAL CFTPP (about 29.96% of the time)
 - MARIVELES CFTPP (about 19.59% of the time)
 - MASINLOC CFTPP (about 18.6% of the time)
- Based on the MMS Solution, the top 5 congested equipment during the week were –
 - 138kV Maasin_Ubay (about 46.5% of the time)
 - 138kV Kabankalan-Mabinay Line 1 (about 3.2% of the time)
 - San Jose 230kV_Transformer 2 (about 0.74% of the time)
 - Makban-B_Transformer 3 (about 0.25% of the time)
 - San Juan_Transformer 2 (about 0.15% of the time)

- Offer Pattern Analysis
 - Coal and geothermal plants recorded higher capacity.
 - Hydro plants recorded decreasing capacity and increasing offer prices towards the end of the week.
 - Natural gas plants recorded lower offered capacity on July 19 and July 20 due to outage of Sta Rita 1 and 2 Blocks of Ilijan, respectively. Furthermore, natural gas plants started to offer at higher prices ranging from Php 15,000 to Php 20,000 since July 21.
 - Oil-based plants recorded lower offered capacity from July 19 to 21 while lower offered prices were recorded on July 18, 20 and 21.
 - Solar and wind plants recorded highest nominated capacities on July 21 and July 23 respectively.

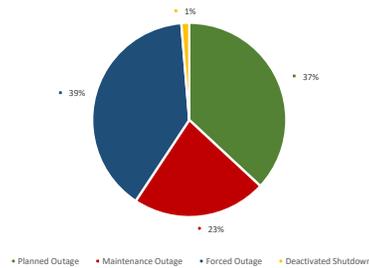
IEMOP MARKET SYSTEMS ADVISORY

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

CAPACITY ON OUTAGE BY PLANT TYPE



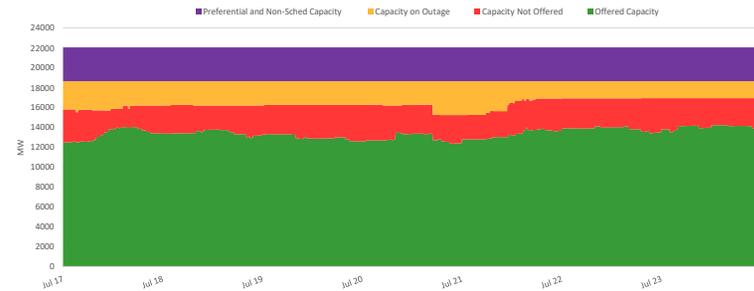
CAPACITY ON OUTAGE BY OUTAGE CATEGORY



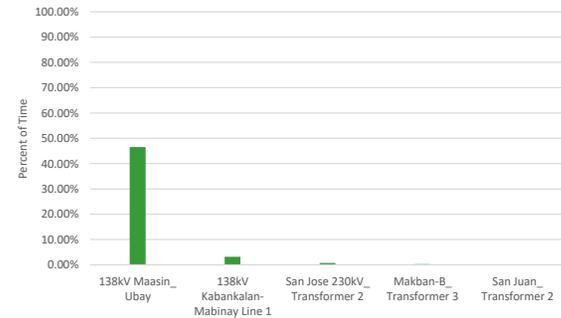
SUMMARY (PRICE, SUPPLY, DEMAND AND RESERVE SCHEDULE)

Particulars		17 - 23 Jul 2023	Previous Week (10 - 16 Jul 2023)	Same Week, Previous Year (18 - 24 Jul 2022)	Percent Change From	
					Previous Week	Same Week, Prev Year
GWAP (PHP/MWh)	max	27,820.645	33,921.588	32,000.000	-17.99%	-13.06%
	min	-998.500	-9,521.852	-1,000.042	89.51%	0.15%
	ave	4,655.377	5,817.549	8,816.182	-19.98%	-47.20%
Effective Supply (MW)	max	14,478.859	14,936.996	14,816.921	-3.07%	-2.28%
	min	10,063.886	9,922.710	10,399.076	1.42%	-3.22%
	ave	12,493.227	12,470.690	12,632.137	0.18%	-1.10%
System Demand (MW)	max	13,867.500	14,551.720	13,217.050	-4.70%	4.92%
	min	8,666.950	8,531.990	8,674.090	1.58%	-0.08%
	ave	11,345.008	11,318.740	11,047.210	0.23%	2.70%
Demand + Reserve Schedule (MW)	max	14,086.937	14,892.584	14,270.188	-5.35%	-1.28%
	min	8,953.100	8,795.490	9,648.290	1.79%	-7.21%
	ave	11,652.918	11,702.356	12,049.937	-0.42%	-3.29%
Supply Margin (MW)	max	1,403.464	1,352.041	1,225.477	3.80%	14.52%
	min	233.514	4.049	0.000	5.7k%	-
	ave	840.309	768.334	581.623	9.37%	44.48%

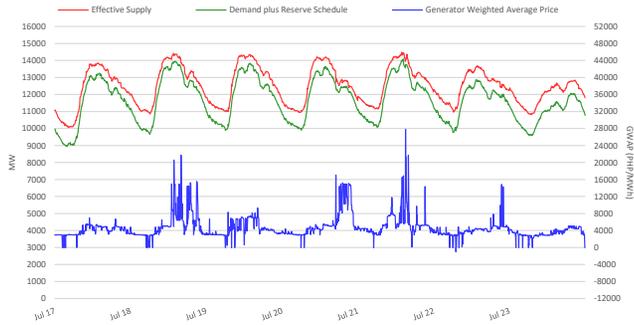
CAPACITY PROFILE



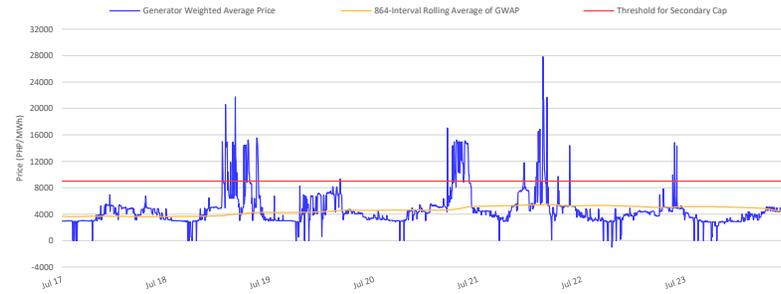
RTD CONGESTION



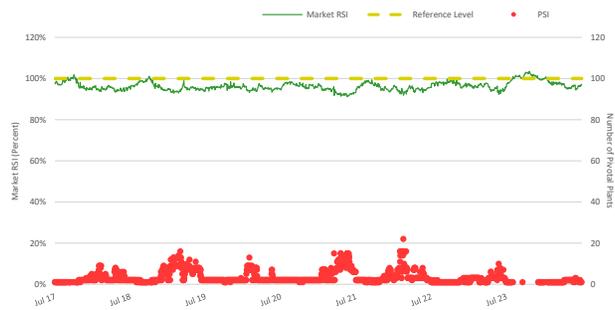
SUPPLY, DEMAND AND PRICE



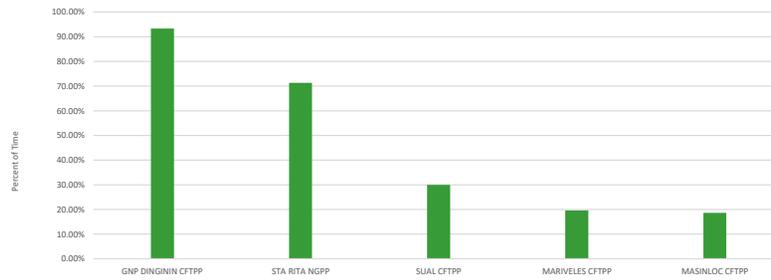
GENERATOR WEIGHTED AVERAGE PRICE



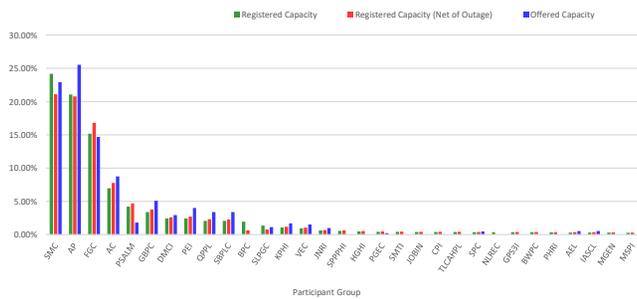
MARKET RSI VS PIVOTAL PLANTS



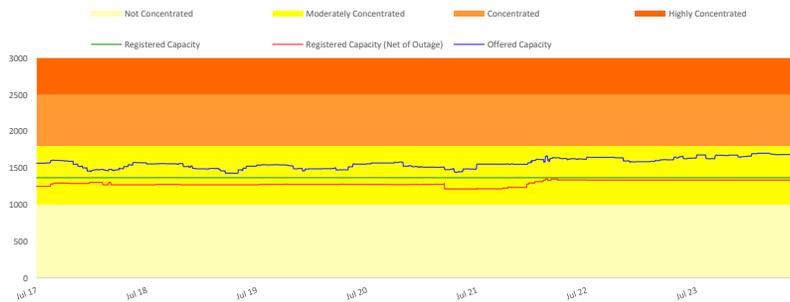
PSI



MARKET SHARE

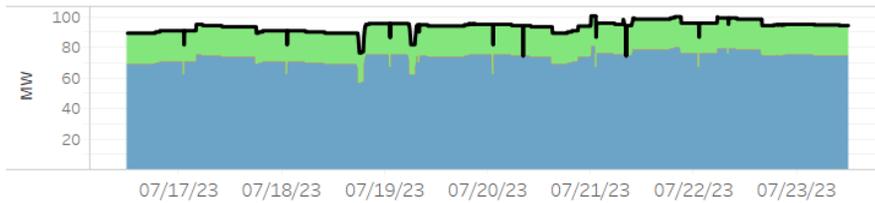


HERFINDAHL-HIRSCHMAN INDEX

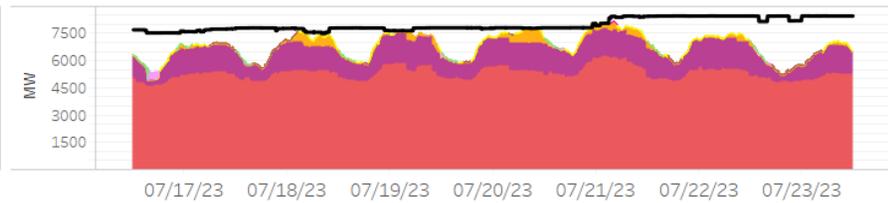


OFFER PATTERN ANALYSIS

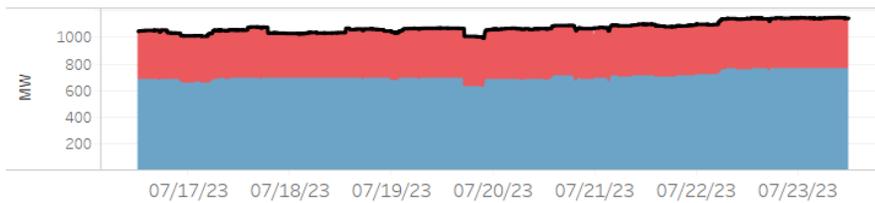
BATTERY AND BIOFUEL



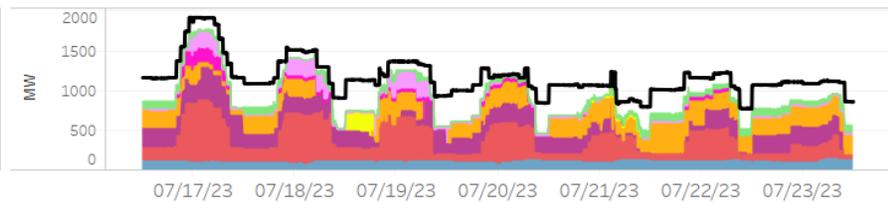
COAL



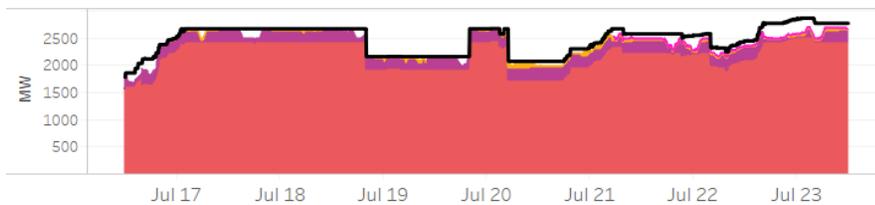
GEOHERMAL



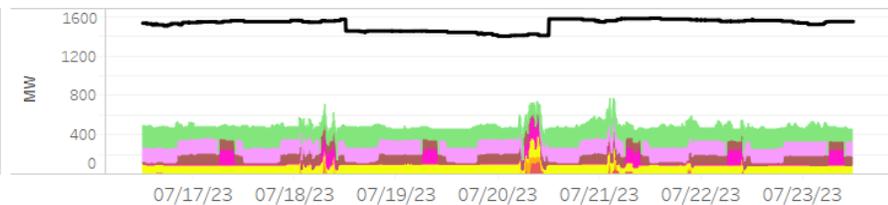
HYDRO



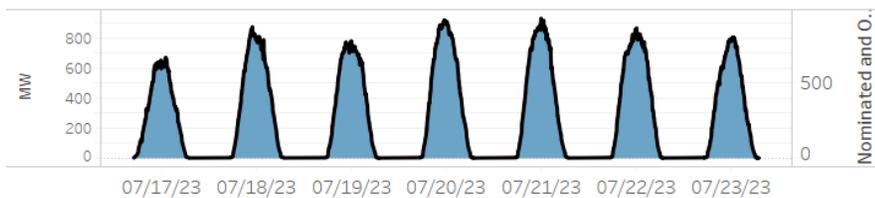
NATURAL GAS



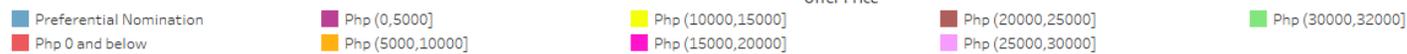
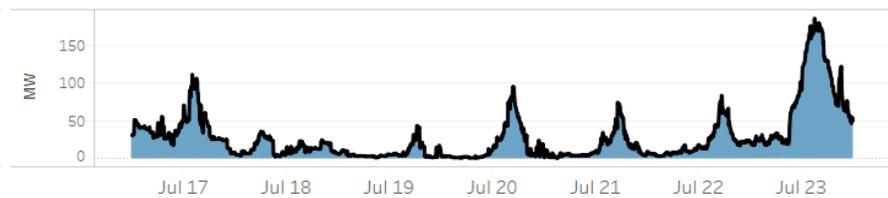
OIL-BASED



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.

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