

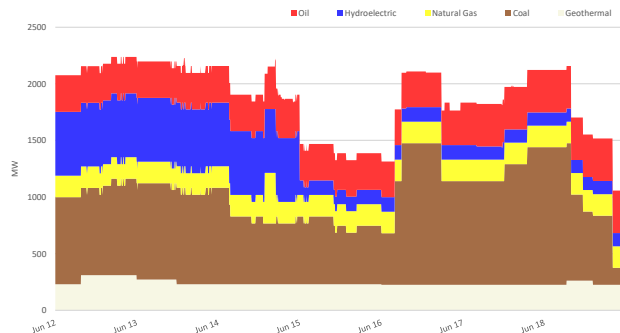
PEMC MARKET ASSESSMENT HIGHLIGHTS

- The average demand and the reserve schedule, recorded at 12,230 MW during the week of 12 - 18 Jun 2023, was lower than the previous week at 12,343 MW and lower than the same week last year at 12,687 MW.
- The average effective supply during the week was 13,001 MW, lower than the 13,085 MW of the previous week and lower than the 13,126 MW during the same week last year. Ramping limitations were considered in the calculation of the effective supply.
 - The capacity on outage averaged at 1,879 MW, lower than last week's 2,472 MW. About 42% of the 1,879 MW involved Coal plants, while in terms of category, about 79% were Forced Outages.
- As a result, an average supply margin of 772 MW was observed during the week, which is higher by about 4% relative to the previous week and higher by about 77% in comparison with the same week last year. The thinnest supply margin based on MMS solution was 60.32 MW on 14 June 2023 14:40 . The average supply margin was 597.05 MW at peak intervals and 879.45 MW at off-peak intervals.
- Correspondingly, average GWAP was recorded at PHP 6,102/MWh from PHP 6,740/MWh last week. This is lower than the PHP9,175/MWh during the same week last year.
 - Administered Price in Visayas will be used in the SO initiated market intervention on 13 June 2023 for intervals 13:55-14:00 due to implementation of MLD.
 - No secondary price cap was imposed for this week
- The top 5 participant groups accounted for about 81% 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 99.8% of the time)
 - SUAL CFTPP (about 67.61% of the time)
 - STA RITA NGPP (about 60.07% of the time)
 - MASINLOC CFTPP (about 55.56% of the time)
 - PAGBILAO CFTPP (about 33.38% of the time)
- Based on the MMS Solution, the top 5 congested equipment during the week were –
 - 138kV Maasin_Ubay (about 47.1% of the time)
 - 230kV Mexico-Hermosa Line1 (about 7.5% of the time)
 - 230kV Mexico-Hermosa Line2 (about 5.1% of the time)
 - San Jose 230kV_Transformer 1 (about 3.4% of the time)
 - 230 kV Hermosa-Malolos Line1 (about 2.0% of the time)
- Coal plants recorded higher offered capacity following the synchronization of QPPL CFTPP (460MW). Similarly, hydro plants recorded higher offered capacity after San Roque HEPP resumed its operation as well as an increase in offer prices for most of its offer pattern curve. On the other hand, natural gas plants recorded lower offer capacity after the emergency shutdown of Ilijan NGPP. Lastly, battery plants resumed offering its capacity while no significant changes with the geothermal and oil plants.

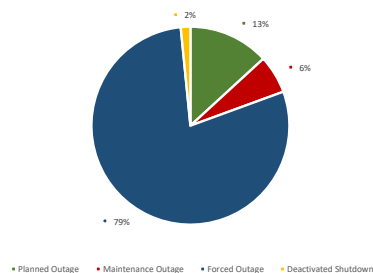
IEMOP MARKET SYSTEMS ADVISORY

- Market Intervention in Visayas was initiated by SO on 13 June 2023 for intervals 13:55-14:00 due to implementation of MLD to prevent overloading of Cebu-Mandaue 138kV Line 1.

CAPACITY ON OUTAGE BY PLANT TYPE



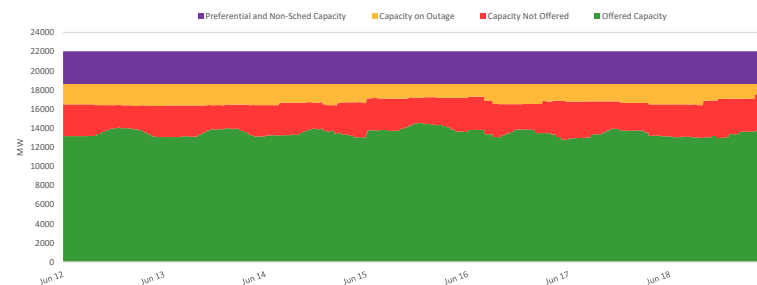
CAPACITY ON OUTAGE BY OUTAGE CATEGORY



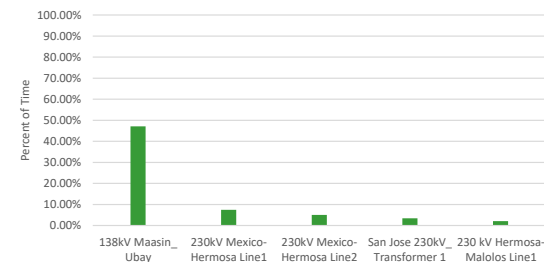
SUMMARY (PRICE, SUPPLY, DEMAND AND RESERVE SCHEDULE)

Particulars		12 - 18 Jun 2023	Previous Week (05 - 11 Jun 2023)	Same Week, Previous Year (13 - 19 Jun 2022)	Percent Change From	
					Previous Week	Same Week, Prev Year
GWAP (PHP/MWh)	max	31,223.61	40,909.95	33,973.44	-23.68%	-8.09%
	min	-9,909.15	-1,029.37	-9,985.00	-862.64%	0.76%
	ave	6,102.20	6,740.30	9,174.87	-9.47%	-33.49%
Effective Supply (MW)	max	15,229.06	15,409.89	15,162.23	-1.17%	0.44%
	min	10,146.61	10,928.26	10,638.35	-7.15%	-4.62%
	ave	13,001.45	13,085.14	13,125.73	-0.64%	-0.95%
System Demand (MW)	max	14,161.98	14,168.46	13,877.78	-0.05%	2.05%
	min	8,389.18	9,281.48	9,236.28	-9.61%	-9.17%
	ave	11,621.86	11,740.08	11,669.04	-1.01%	-0.40%
Demand + Reserve Schedule (MW)	max	14,850.79	14,989.15	14,954.38	-0.92%	-0.69%
	min	8,949.18	9,825.48	10,131.38	-8.92%	-11.67%
	ave	12,229.58	12,343.42	12,686.80	-0.92%	-3.60%
Supply Margin (MW)	max	1,372.34	1,289.65	1,049.98	6.41%	30.70%
	min	60.32	-388.53	-815.13	115.52%	107.40%
	ave	771.87	741.71	436.32	4.07%	76.91%

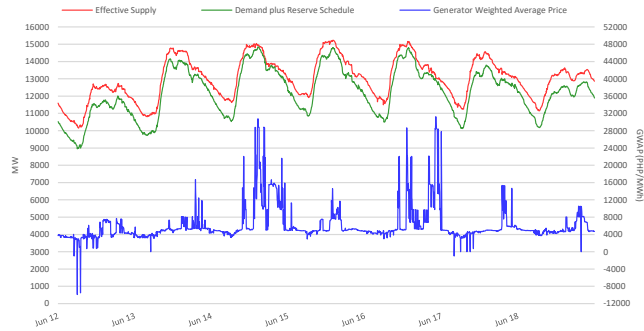
CAPACITY PROFILE



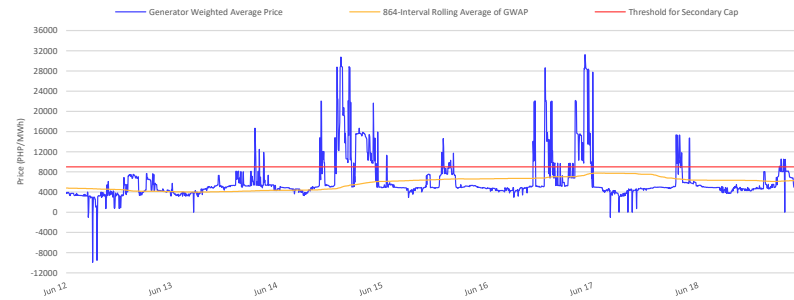
RTD CONGESTION



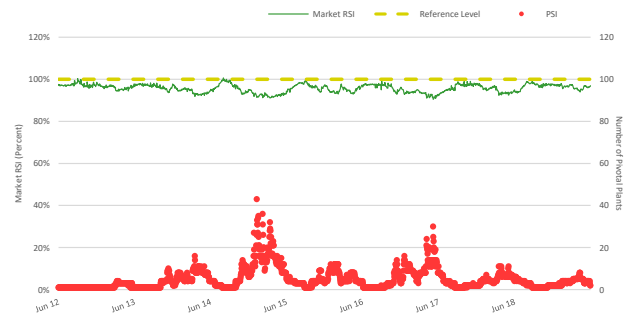
SUPPLY, DEMAND AND PRICE



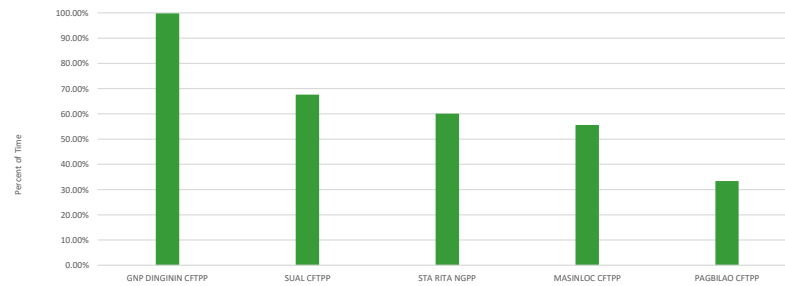
GENERATOR WEIGHTED AVERAGE PRICE



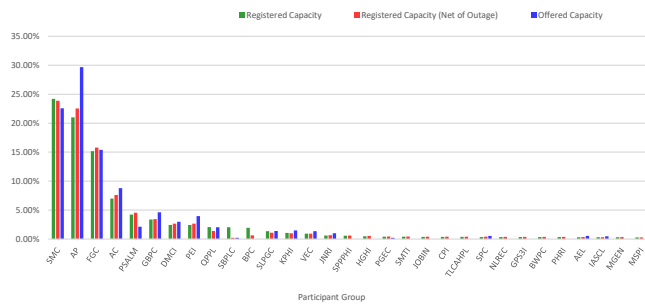
MARKET RSI VS PIVOTAL PLANTS



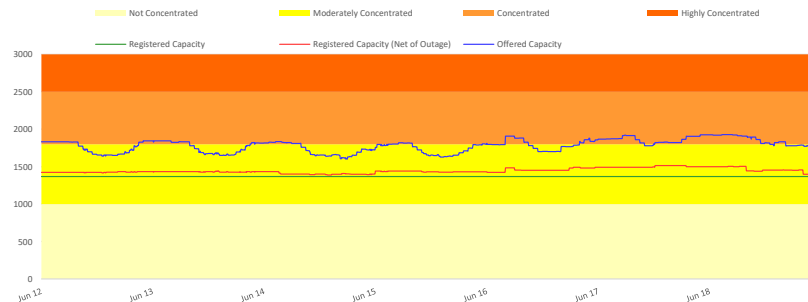
PSI



MARKET SHARE



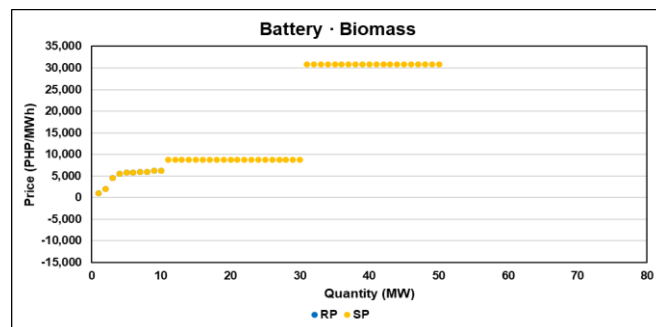
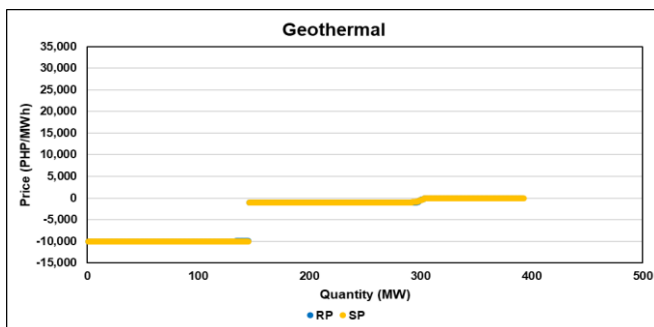
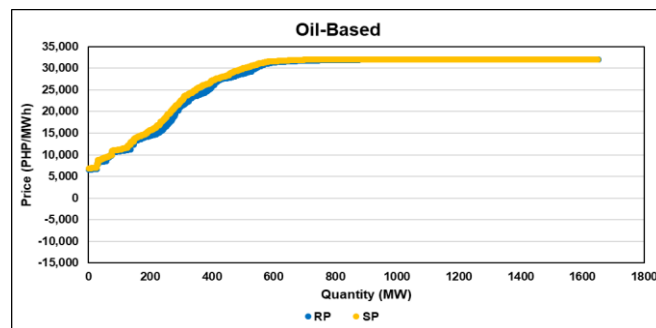
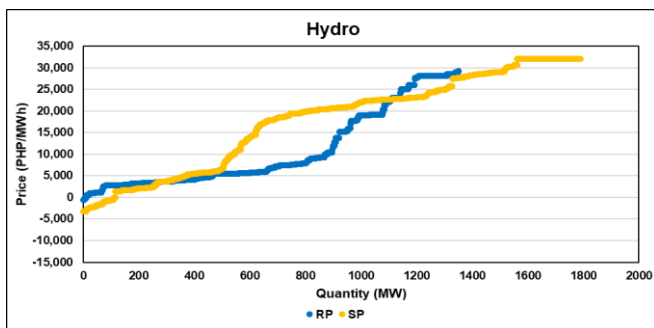
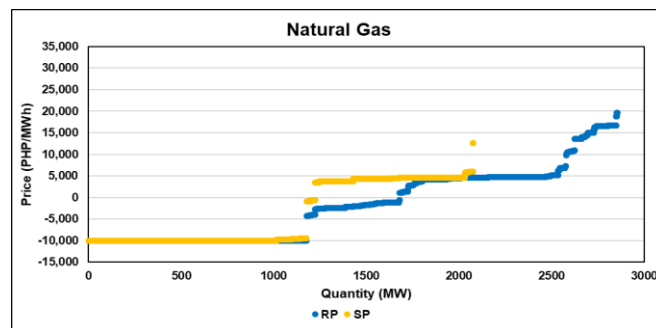
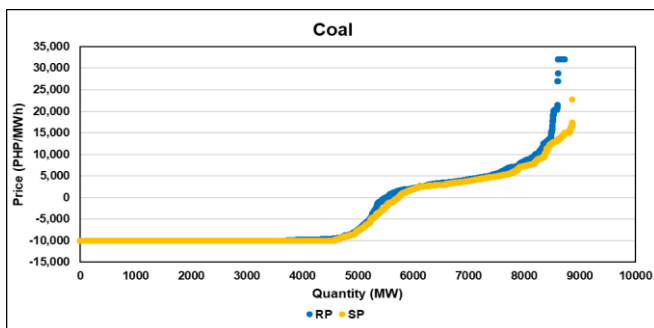
HERFINDAHL-HIRSCHMAN INDEX



OFFER PATTERN ANALYSIS
Legend

RP: Reference Offer Price – the week of 05-11 Jun 2023 was used as a control for the comparison with the subject price

SP: Subject Offer Price – the week of 12-18 Jun 2023



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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