

## PEMC MARKET ASSESSMENT HIGHLIGHTS

- The average demand and the reserve schedule, recorded at 12,506 MW during the week of 14 - 20 Aug 2023, was higher than the previous week at 12,464 MW and higher than the same week last year at 11,435 MW.

- The average effective supply during the week was 13,204 MW, higher than the 13,097 MW of the previous week and higher than the 11,966 MW during the same week last year. Ramping limitations were considered in the calculation of the effective supply.

- The capacity on outage averaged at 2,356 MW, lower than last week's 2,614 MW. About 42% of the 2,356 MW involved Coal plants, while in terms of category, about 45% were Forced Outages.

- As a result, an average supply margin of 698 MW was observed during the week, which is higher by about 10% relative to the previous week and higher by about 32% in comparison with the same week last year. The minimum supply margin based on MMS solution was 116.39 MW on 17 August 2023 13:15. The average supply margin was 606.86 MW at peak intervals and 770.48 MW at off-peak intervals.

- Correspondingly, average GWAP was recorded at PHP 5,670/MWh from PHP 6,951/MWh last week. This is lower than the PHP6,935/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 partially concentrated and moderately concentrated market based on the offered and registered capacities respectively.

- The top 5 pivotal plants during the week were –

1. GNP DINGININ CFTPP (about 100.% of the time)
2. STA RITA NGPP (about 72.67% of the time)
3. MASINLOC CFTPP (about 69.69% of the time)
4. SUAL CFTPP (about 62.65% of the time)
5. MARIVELES CFTPP (about 61.66% of the time)

- Based on the MMS Solution, the top 5 congested equipment during the week were –

1. 138kV Maasin-Ubay Line 1 (about 24.3% of the time)
2. 230kV Mexico-Hermosa Line2 (0.99% of the time)
3. Malolos\_Transformer 3 (0.25% of the time)
4. Nabas\_Transformer 2 (0.1% of the time)
5. Duhat\_Transformer 2 (0.05% of the time)

### OPA\_ANALYSIS

- Battery started to increase its capacity on August 15 and recorded highest offered capacity of 180MW which mostly are in ancillary services.
- On August 20, coal plants recorded significant decrease in offered capacity due to a forced outage by a plant resulting in the decrease of capacity offered at Php 0 and below.
- Hydro plants recorded highest set of offered prices on August 14 (Monday).
- Natural gas plants's varying level of offered capacity is due to the forced outages within the week. Highest recorded offered capacity is on August 15 to 18. Lowest set of prices were observed on August 18.
- Oil-based plants' highest effective capacity were recorded on August 14 then followed on August 20.
- Solar plants' recorded highest nomination of 1,039MW on August 14 and had maintained nomination levels throughout the week except on August 19.
- Wind plants's recorded highest nomination of 161MW was on August 17 and had observed decrease on August 19 and 20.

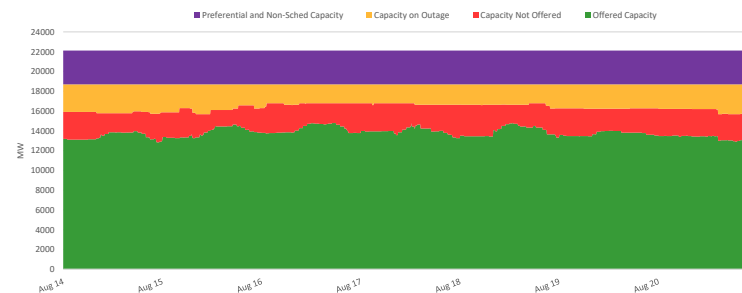
### ITEMOP MARKET SYSTEMS ADVISORY

- No IT-related issue was advised in ITEMOP's market systems from 14 - 20 Aug 2023.

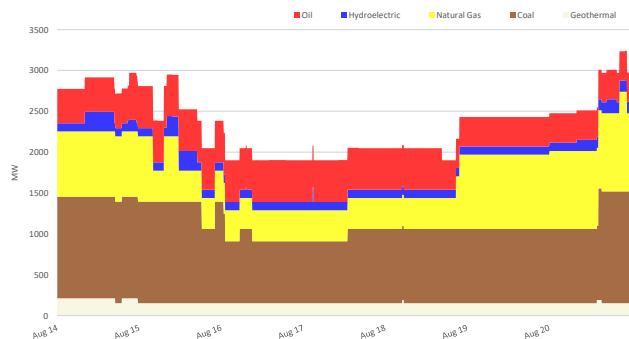
## SUMMARY (PRICE, SUPPLY, DEMAND AND RESERVE SCHEDULE)

Particulars		14 - 20 Aug 2023	Previous Week (07 - 13 Aug 2023 )	Same Week, Previous Year (15 - 21 Aug 2022)	Percent Change From	
GWAP (PHP/MWh)	max	33,368.007	33,271.264	30,122.062	0.29%	10.78%
	min	83.704	0.000	179.297	-	-53.32%
	ave	5,670.229	6,951.294	6,935.268	-18.43%	-18.24%
Effective Supply (MW)	max	15,405.256	15,345.493	14,476.583	0.39%	6.42%
	min	10,934.128	10,933.661	9,830.253	0.00%	11.23%
	ave	13,204.385	13,097.110	11,965.519	0.82%	10.35%
System Demand (MW)	max	14,261.510	14,439.800	12,639.360	-1.23%	12.83%
	min	9,389.810	9,613.080	8,382.590	-2.32%	12.02%
	ave	12,045.462	12,131.773	10,538.520	-0.71%	14.30%
Demand + Reserve Schedule (MW)	max	14,854.227	14,947.393	13,709.912	-0.62%	8.35%
	min	9,917.850	9,895.140	9,233.870	0.23%	7.41%
	ave	12,505.977	12,463.659	11,435.247	0.34%	9.36%
Supply Margin (MW)	max	1,244.873	1,329.370	1,070.345	-6.36%	16.31%
	min	116.393	-0.166	166.683	70k%	-30.17%
	ave	698.408	633.451	530.273	10.25%	31.71%

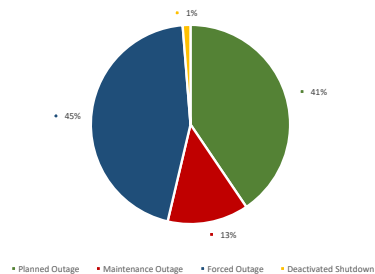
## CAPACITY PROFILE



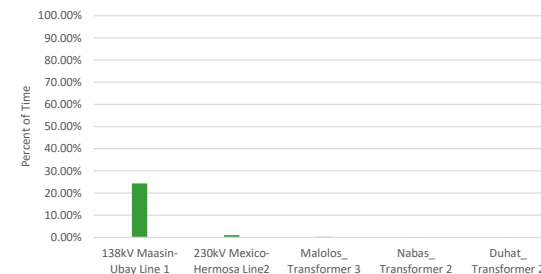
## CAPACITY ON OUTAGE BY PLANT TYPE



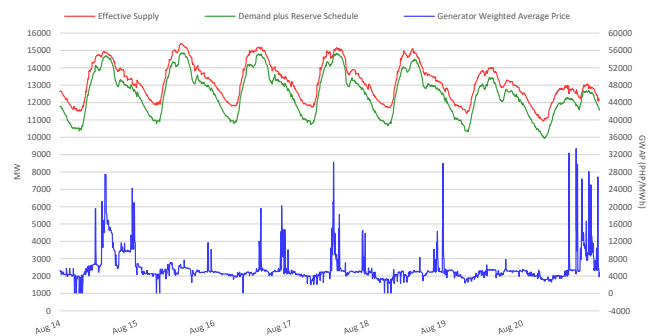
## CAPACITY ON OUTAGE BY OUTAGE CATEGORY



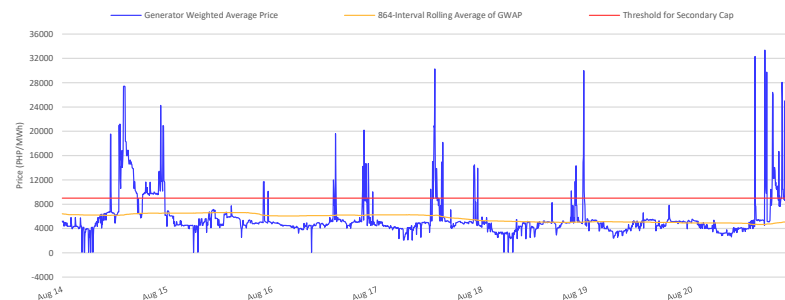
## RTD CONGESTION



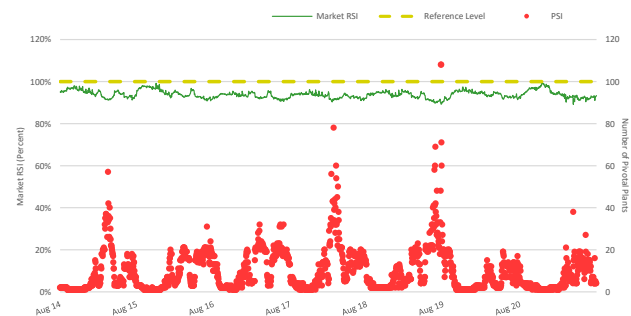
## SUPPLY, DEMAND AND PRICE



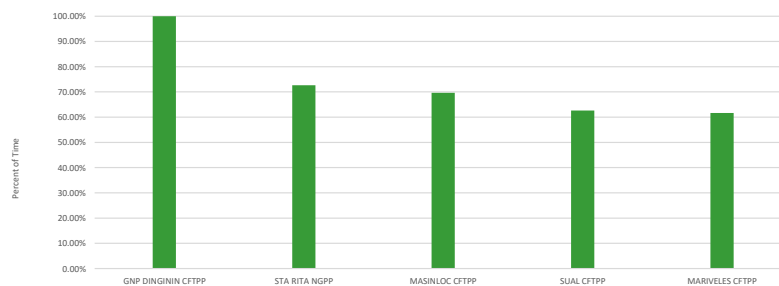
## GENERATOR WEIGHTED AVERAGE PRICE



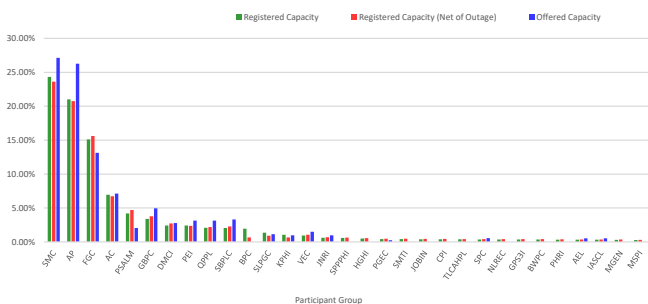
## MARKET RSI VS PIVOTAL PLANTS



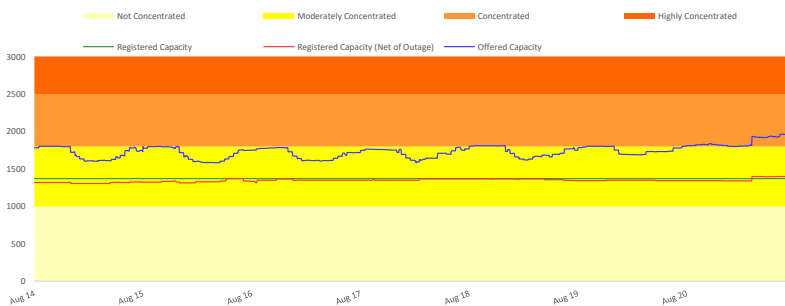
## PSI



## MARKET SHARE

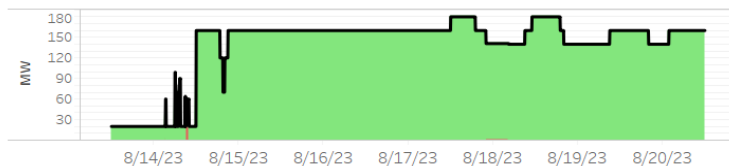


## HERFINDAHL-HIRSCHMAN INDEX

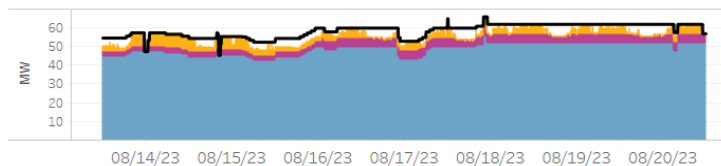


**OFFER PATTERN ANALYSIS**

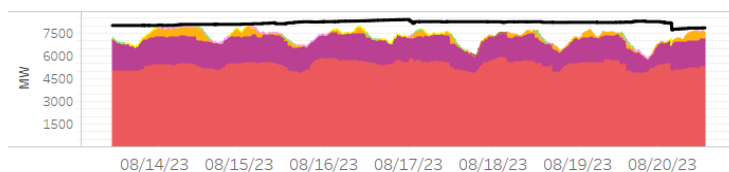
**BATTERY**



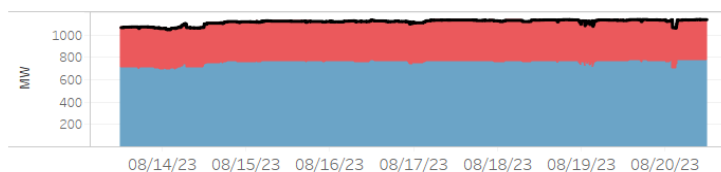
**BIOFUEL**



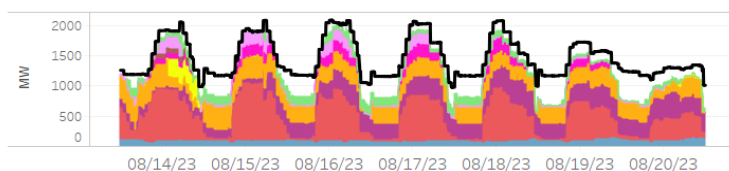
**COAL**



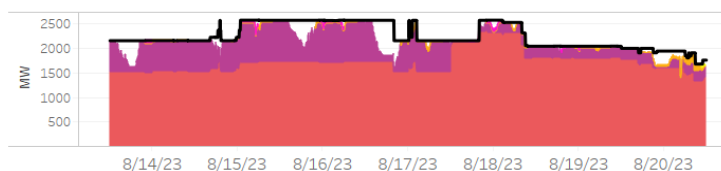
**GEO THERMAL**



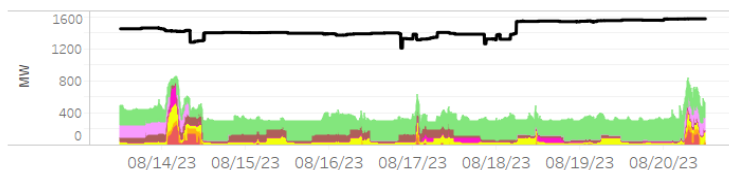
**HYDRO**



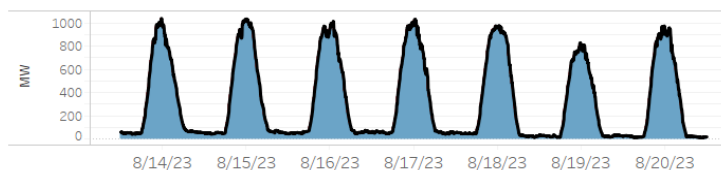
**NATURAL GAS**



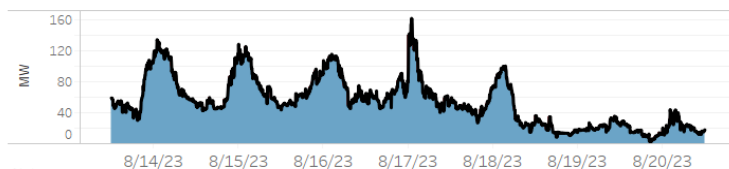
**OIL-BASED**



**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.

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