PEMC MARKET ASSESSMENT HIGHLIGHTS

· The average demand and the reserve schedule, recorded at 11,001 MW during the week of 14 - 20 Feb 2022, was higher than the previous week at 10,788 MW and higher than the same week last year at 10,352 MW. Metro Manila was remained on Alert Level 2 until the end of February. Meanwhile, the Inter-Agency Task Force also retained the Alert Level 3 status of several areas until the end of the month: Iloilo City, Iloilo Province, Guimaras, Zamboanga City, Davao de Oro, Davao Occidental, South Cotabato, All other areas were under Alert Level 2.

·The WESM registered capacity stood at 21,100 MW at the end of the week.

· An average supply margin of 740 MW was observed during the week, which is lower by about 1% relative to the previous week and lower by about 68% in comparison with the same week last year.The supply margin of 266.44 MW observed on 18 February 2022 18:45 was the tightest during the week . The average supply margin was 668.98 MW at peak intervals and 795.86 MW at off-peak intervals.

· The outage capacity averaged at 3,902 MW, higher than last week's 3,580 MW. About 49% of the 3,902 MW involved Coal plants, while in terms of category, about 51% were Forced Outages.

· The average effective supply during the week was 11,741 MW, higher than the 11,535 MW of the previous week and lower than the 12,662 MW during the same week last year. Ramping limitations in generators' offers persisted which caused the lowering of the effective supply.

· Average GWAP was recorded at PHP 6,557/MWh from PHP 6,095/MWh last week. This is higher than the PHP 2,197/MWh during the same week last year. Administered Prices were used in the market intervention in Luzon and Visayas on 20 February 2022 at 08:00.

·No secondary price cap was imposed for this week

· The top 5 participant groups accounted for about 83% of the offered capacity. The Herfindahl-Hirschman Index (HHI) by participant group indicated a concentrated market based on the registered and offered capacities.

· Based on the effective supply, the top 5 pivotal plants during the week were –
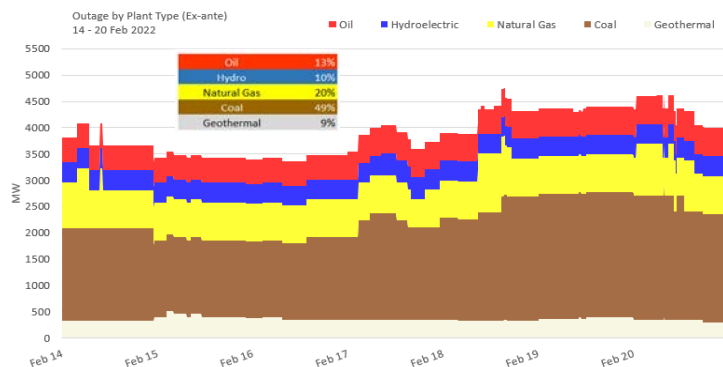
1. STA RITA NGPP (about 93.2% of the time)
2. SUAL CFTPP (about 87.4% of the time)
3. MASINLOC CFTPP (about 70.14% of the time)
4. ILIJAN NGPP (about 66.77% of the time)
5. PAGBILAO CFTPP (about 49.4% of the time)

· Higher average prices were observed from natural gas plants following the lesser capacity offered at low prices. Meanwhile, hydro plants recorded an increase in its offer prices for the last portion of its offered capacity. On the other hand, oil-based plants submitted lower prices for a portion of its capacity while coal plants offered more low-priced capacity which led to lower average offer prices.

IEMOP MARKET SYSTEMS ADVISORY

· Market Operator initiated Market Intervention for 20 February 2022 at 08:00 due to error in database resulting in non-publication of market results.
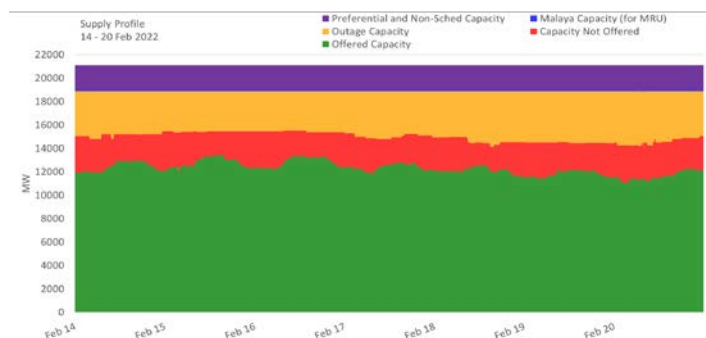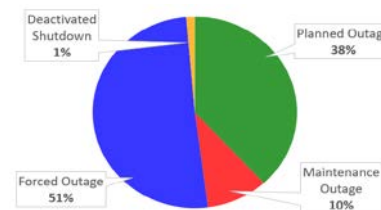
SUMMARY (PRICE, SUPPLY, DEMAND AND RESERVE SCHEDULE)

Particulars		14 - 20 Feb 2022	Previous Week (07 - 13 Feb 2022)	Same Week, Previous Year (08 - 14 Feb 2021)	Percent Change From	
					Previous Week	Same Week, Prev Year
GWAP (PHP/MWh)	max	32,033.86	31,494.43	6,841.09	1.71%	368.26%
	min.	-982.65	-923.78	1,540.99	-6.37%	-163.77%
	w. ave.	6,556.61	6,095.27	2,197.03	7.57%	198.43%
Effective Supply (MW)	max	13,629.72	13,473.34	13,862.01	1.16%	-1.68%
	min.	10,036.47	9,670.51	11,759.87	3.78%	-14.65%
	ave.	11,740.88	11,534.73	12,662.29	1.79%	-7.28%
System Demand (MW)	max	12,002.92	11,730.15	10,966.78	2.33%	9.45%
	min.	8,383.31	8,080.15	7,474.38	3.75%	12.16%
	ave.	10,181.84	9,962.44	9,221.25	2.20%	10.42%
Demand + Reserve Schedule (MW)	max	12,995.52	12,693.15	12,156.18	2.38%	6.90%
	min.	9,067.31	8,768.15	8,451.78	3.41%	7.28%
	ave.	11,000.53	10,788.47	10,351.50	1.97%	6.27%
Supply Margin (MW)	max	1,227.96	1,250.97	3,726.24	-1.84%	-67.05%
	min.	266.44	226.85	857.86	17.46%	-68.94%
	ave.	740.34	746.25	2,310.79	-0.79%	-67.96%

SUPPLY PROFILE

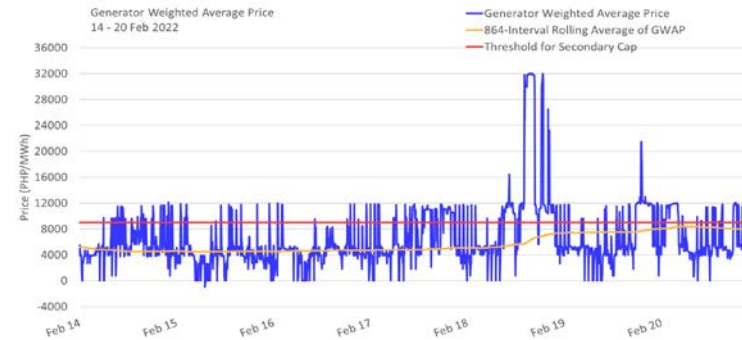## OUTAGE CAPACITY BY PLANT TYPE

OUTAGE CAPACITY BY OUTAGE CATEGORY
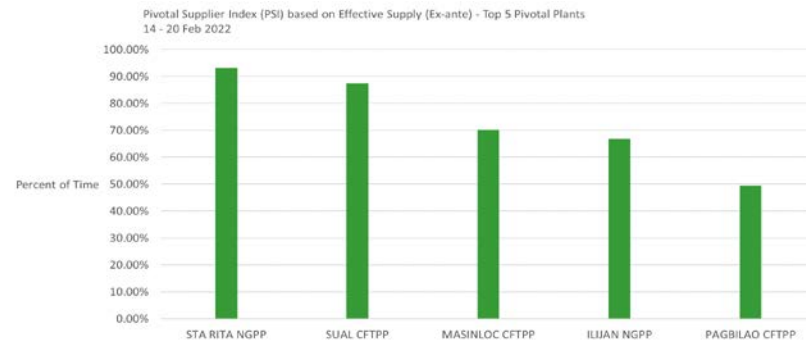
SUPPLY, DEMAND AND PRICE
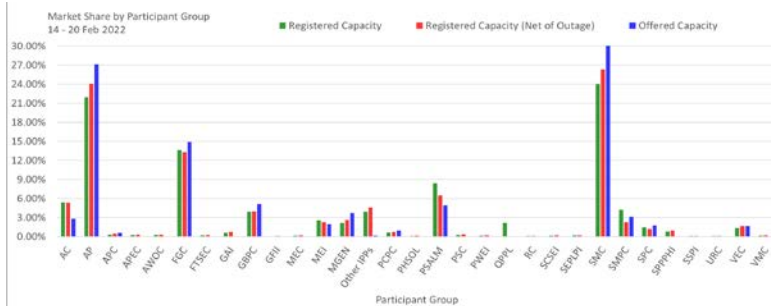

GENERATOR WEIGHTED AVERAGE PRICE
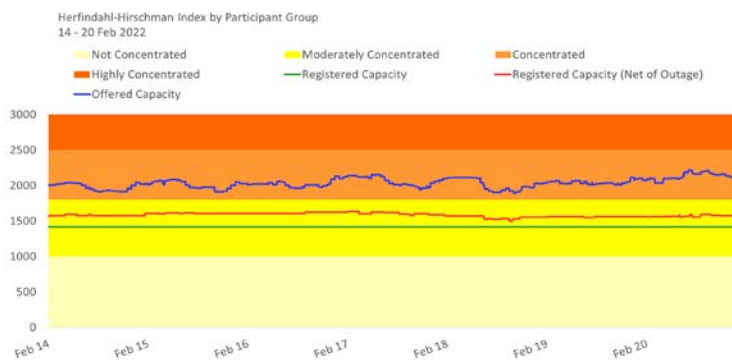

MARKET RSI VS PIVOTAL PLANTS

PSI

MARKET SHARE

HERFINDAHL-HIRSCHMAN INDEX
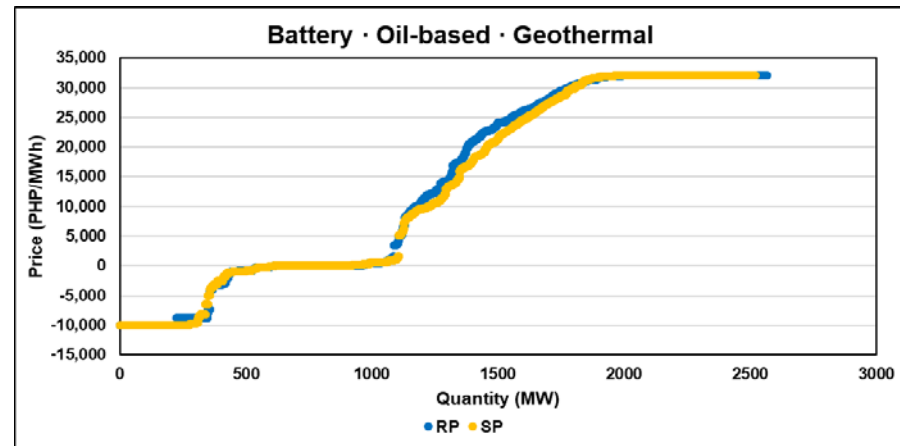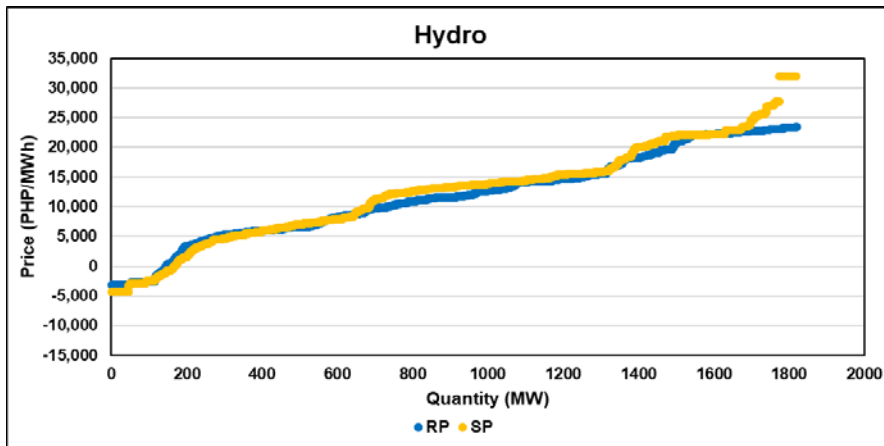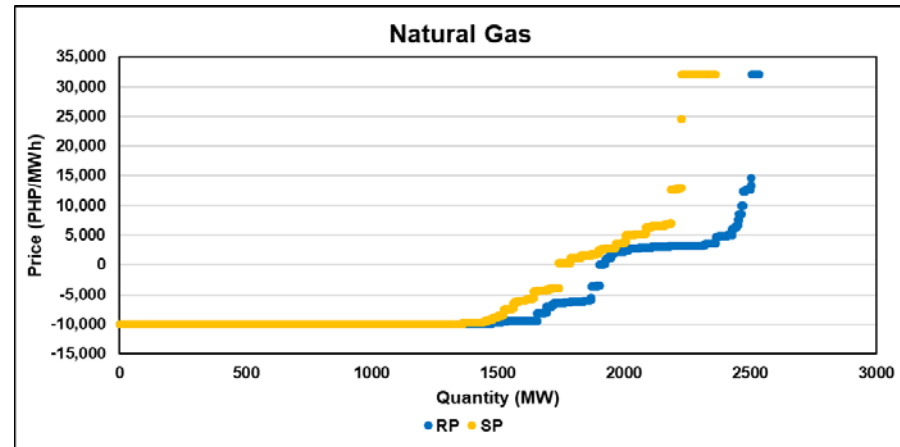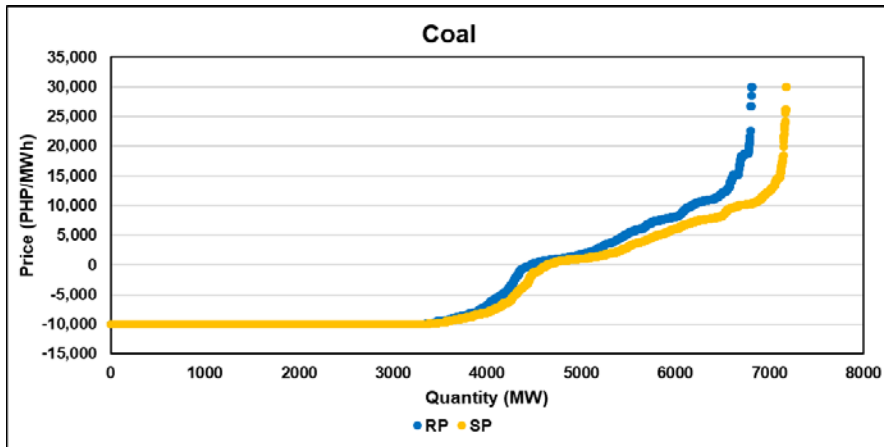
Philippine Electricity Market Corporation

OFFER PATTERN ANALYSIS

Legend

RP: Reference Offer Price – the week of 07-13 Feb 2022 was used as a control for the comparison with the subject price

SP: Subject Offer Price – the week of 14-20 Feb 2022

Coal

Natural Gas

Hydro

Battery · Oil-based · Geothermal

GLOSSARY OF TERMS

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.

The HHI is calculated using the (i) registered capacity, (ii) registered capacity net of outage, (iii) offered capacity, (iv) metered quantity, and (v) spot transaction (metered quantity net of bilateral contract declarations).

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.

PRICE SETTING FREQUENCY INDEX (PSFI) - A generator trading node is considered as a price setter when its last accepted offer price is between 95% to 100% of its nodal price. A generating plant is considered as price setter if at least one of its trading nodes was price setter in a given trading hour. The price setters are determined from: (i) ex-ante for trading intervals without pricing error during ex-ante, (ii) ex-post with pricing error during ex-ante but without pricing error during ex-post, (iii) market re-run results for trading intervals with pricing error both in ex-ante and ex-post, and (iv) trading intervals where the price substitution methodology (PSM) was applied. For trading intervals affected by PSM, the unconstrained marginal plants are considered price setters. Further, in instances of regional price separation, price setters are determined separately for each region.

MARKET SHARE - The fraction of the total capacity or energy that a company or related group owns or controls in the market.

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).

CAPACITY FACTOR - The index assesses the performance of the generators in the market. A high capacity factor indicates the high utilization of the generators.

CAPACITY PROFILE - The hourly factors affecting supply, which include, among others, the offered capacity, outage capacity and ancillary services schedule.

MAJOR PARTICIPANT GROUP - The grouping of generators by ownership or control.

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 hourly offer to supply electricity submitted by a generator.

METERED QUANTITY - The hourly quantity of electricity generated by a generator.

SPOT TRANSACTION - The hourly quantity of electricity sold to the market by a generator net of bilateral contract declaration accounted for in the settlement.

ANCILLARY SERVICES SCHEDULES - The hourly quantity scheduled by the System Operator to provide regulating, contingency and dispatchable reserves.

EFFECTIVE SUPPLY - The houly 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.