

PEMCO MARKET ASSESSMENT HIGHLIGHTS

The average demand and the reserve schedule, recorded at 11,381 MW during the week of 28 Feb -06 Mar 2022, was higher than the previous week at 10,973 MW ,higher than the same week last year at 10,639 MW. National Capital Region was placed under Alert Level 1 until 15 March.¹

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

An average supply margin of 549 MW was observed during the week, which is lower by about 2% relative to the previous and 77% in comparison with the same week last year. The supply margin of 97.82 MW observed on 04 March 2022 15:40 was the tightest during the week. The average supply margin was 473.86 MW at peak intervals and 608.34 MW at off-peak intervals.

The outage capacity averaged at 3,063 MW, lower than last week's 3,918 MW. About 46% of the 3,063 MW involved Coal plants, while in terms of category, about 58% were Forced Outages.

The average effective supply during the week was 11,930 MW, higher than the 11,536 MW of the previous week and lower than the 12,984 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 5,245/MWh from PHP 6,277/MWh last week. This is higher than the PHP 2,854/MWh during the same week last year.

No secondary price cap was imposed for this week

The top 5 participant groups accounted for about 84% of the offered capacity. The Herfindahl-Hirschman Index (HHI) by participant group indicated a moderately concentrated and concentrated market based on the registered and offered capacities respectively.

Based on the effective supply, the top 5 pivotal plants during the week were –

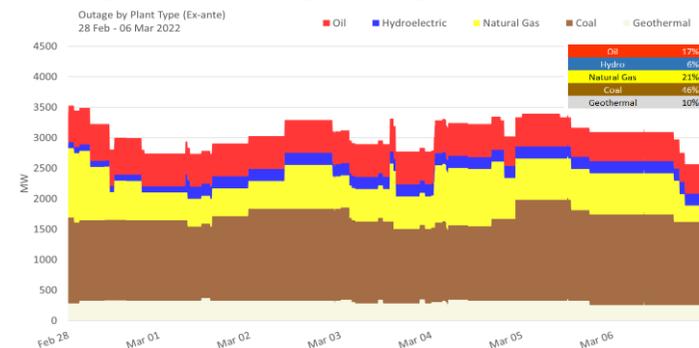
1. STA RITA NGPP (about 94.89% of the time)
2. MASINLOC CFTPP (about 93.25% of the time)
3. SUAL CFTPP (about 87.9% of the time)
4. ILIJAN NGPP (about 79.86% of the time)
5. PAGBILAO CFTPP (about 77.78% of the time)

Coal plants had higher capacity offered during 28 February to 6 March compared to the previous week. Moreover, coal plants had a noted decrease in offer prices owing mainly to the additional capacity were offered in the subject week. Hydro plants generally offered at higher prices during the week. Oil-based plants had higher offer prices at the start of its offer curve but lower in the middle. Meanwhile, natural gas plants had lower offer prices in the latter half of its offer curve except for a small portion offered at higher prices.

IEMOP MARKET SYSTEMS ADVISORY

No IT-related issue was advised in IEMOP's market systems from 28 Feb -06 Mar 2022.

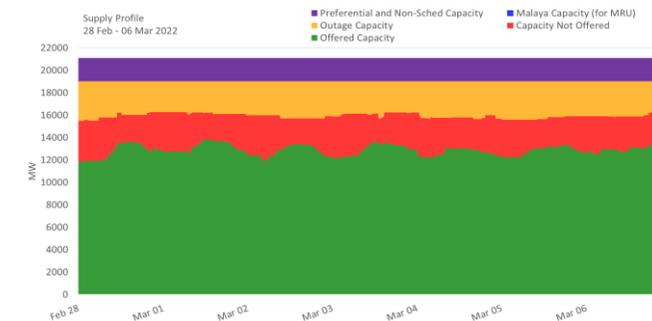
OUTAGE CAPACITY BY PLANT TYPE



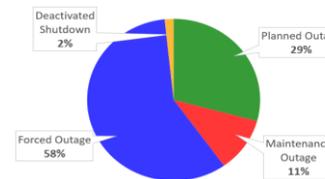
SUMMARY (PRICE, SUPPLY, DEMAND AND RESERVE SCHEDULE)

Particulars		28 Feb -06 Mar 2022	Previous Week (21 - 27 Feb 2022)	Same Week, Previous Year (22 - 28 Feb 2021)	Percent Change From	
					Previous Week	Same Week, Prev Year
GWAP (PHP/MWh)	max	24,792.71	30,876.96	13,536.46	-19.70%	83.16%
	min.	-1,026.93	-1,031.92	1,226.07	0.48%	-183.76%
	w. ave.	5,245.24	6,277.23	2,853.84	-16.44%	83.80%
Effective Supply (MW)	max	13,832.46	13,488.70	14,162.67	2.55%	-2.33%
	min.	9,903.34	9,723.17	11,979.20	1.85%	-17.33%
	ave.	11,929.83	11,535.72	12,983.87	3.42%	-8.12%
System Demand (MW)	max	12,401.97	11,826.41	11,491.28	4.87%	7.93%
	min.	8,178.94	8,260.43	6,768.62	-0.99%	20.84%
	ave.	10,394.14	9,973.96	9,507.80	4.21%	9.32%
Demand + Reserve Schedule (MW)	max	13,479.97	12,916.05	12,735.88	4.37%	5.84%
	min.	9,031.50	8,961.76	7,766.82	0.78%	16.28%
	ave.	11,380.72	10,973.20	10,639.32	3.71%	6.97%
Supply Margin (MW)	max	1,046.91	1,091.37	4,269.98	-4.07%	-75.48%
	min.	97.82	10.30	699.81	850.10%	-86.02%
	ave.	549.10	562.52	2,344.55	-2.38%	-76.58%

SUPPLY PROFILE

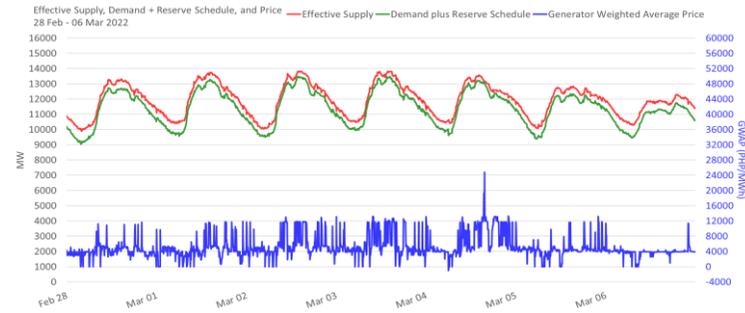


OUTAGE CAPACITY BY OUTAGE CATEGORY

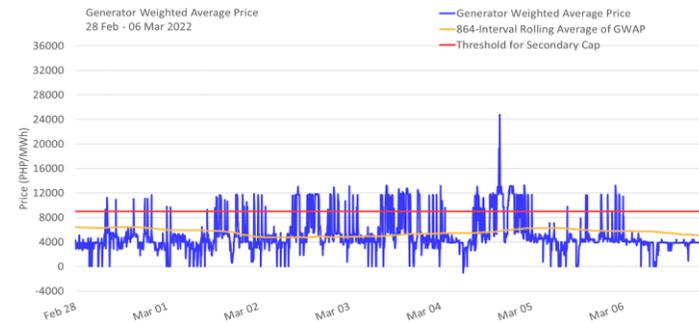


¹ Under Alert Level 2 were (Luzon) Cordillera Administrative Region; Benguet, Ifugao, and Mountain Province; Region 2: Nueva Vizcaya; Region 3: Nueva Ecija and Zambales; Region 4-A: Batangas, Lucena City, Quezon, and Rizal; Region 4-B: Occidental Mindoro, Oriental Mindoro, and Palawan; and Region 5: Albay, Camarines Norte, Camarines Sur, Masbate, and Sorsogon; (Visayas) Region 6: Antique, Iloilo City, Iloilo, and Negros Occidental; Region 7: Bohol, Cebu Province, Cebu City, Lapu-Lapu City, Mandaue City, and Negros Oriental; and Region 9: Eastern Samar, Leyte, Northern Samar, Ormoc City, Southern Leyte, Tacloban City, and Western Samar. Other areas not mentioned were under alert level 1.

SUPPLY, DEMAND AND PRICE



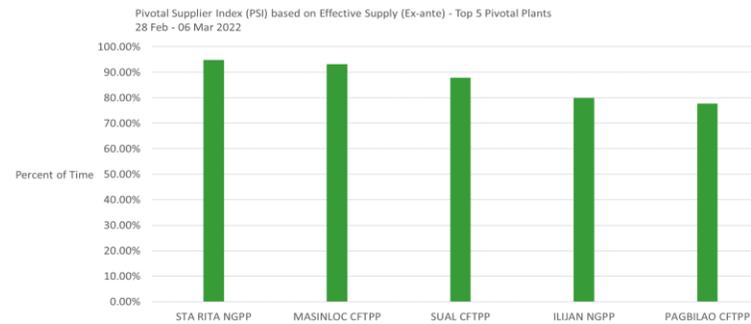
GENERATOR WEIGHTED AVERAGE PRICE



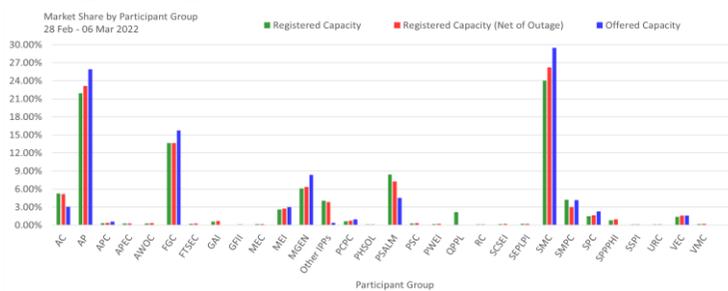
MARKET RSI VS PIVOTAL PLANTS



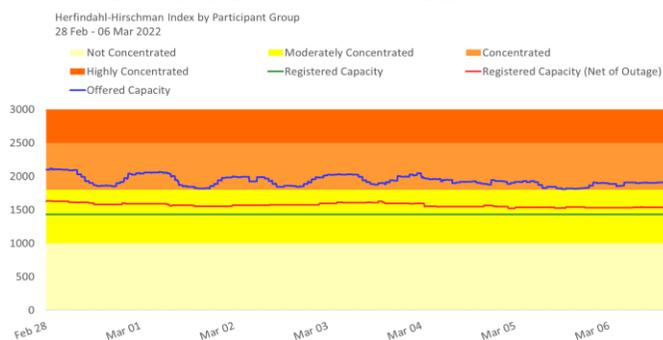
PSI



MARKET SHARE



HERFINDAHL-HIRSCHMAN INDEX

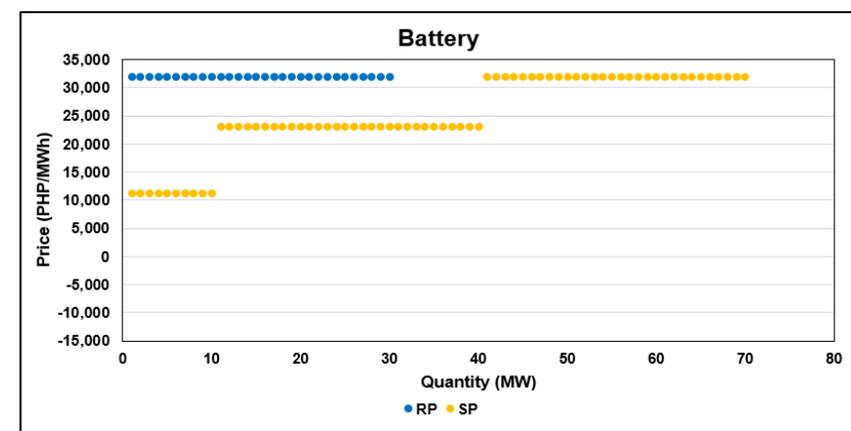
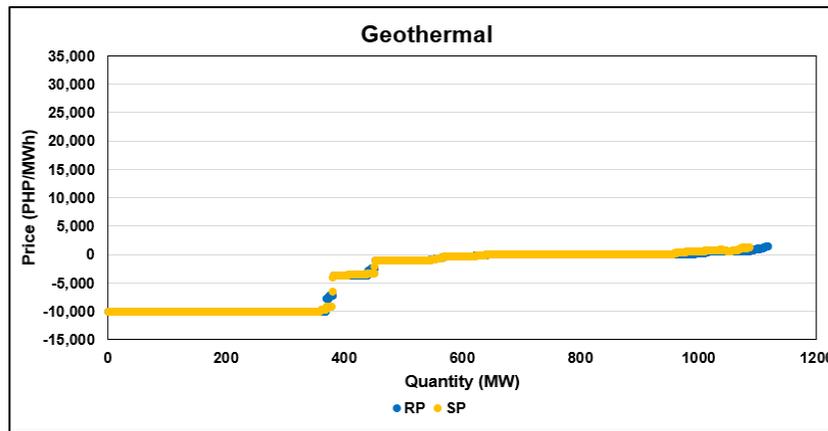
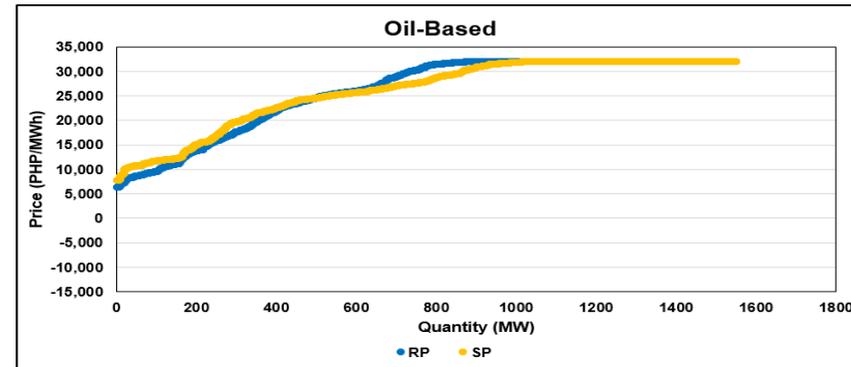
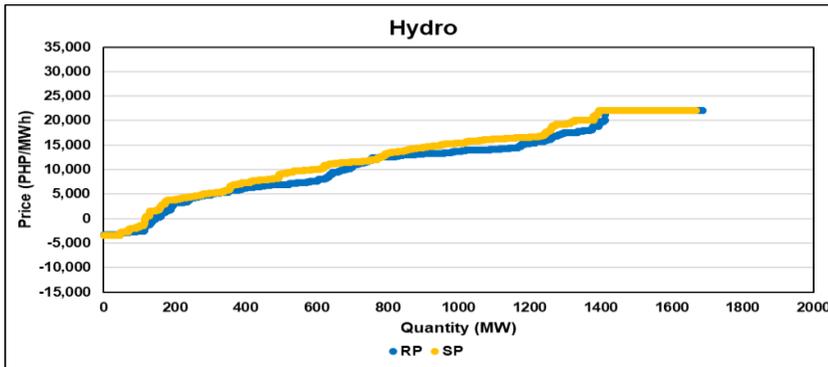
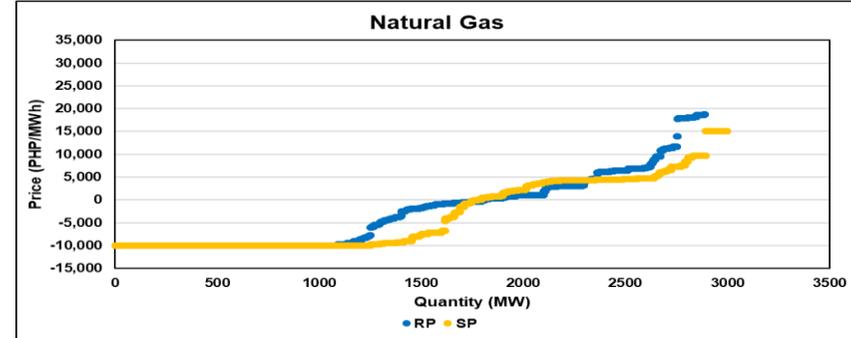
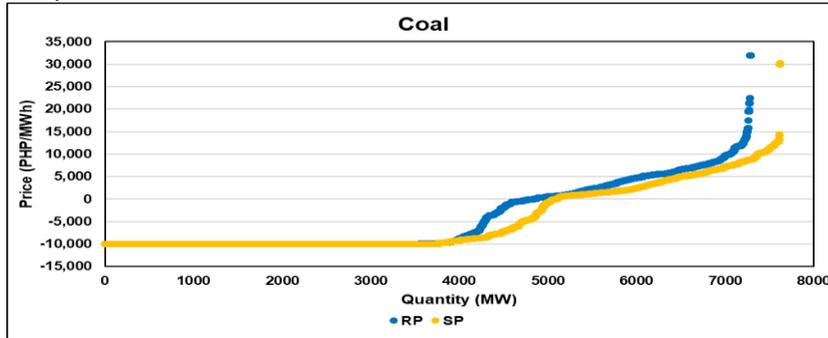


OFFER PATTERN ANALYSIS

Legend

RP: Reference Offer Price – the week of 21-27 Feb 2022 was used as a control for the comparison with the subject price

SP: Subject Offer Price – the week of 28 Feb-06 Mar 2022



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 bilateal 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 hourly 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.

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