

PEMC MARKET ASSESSMENT HIGHLIGHTS

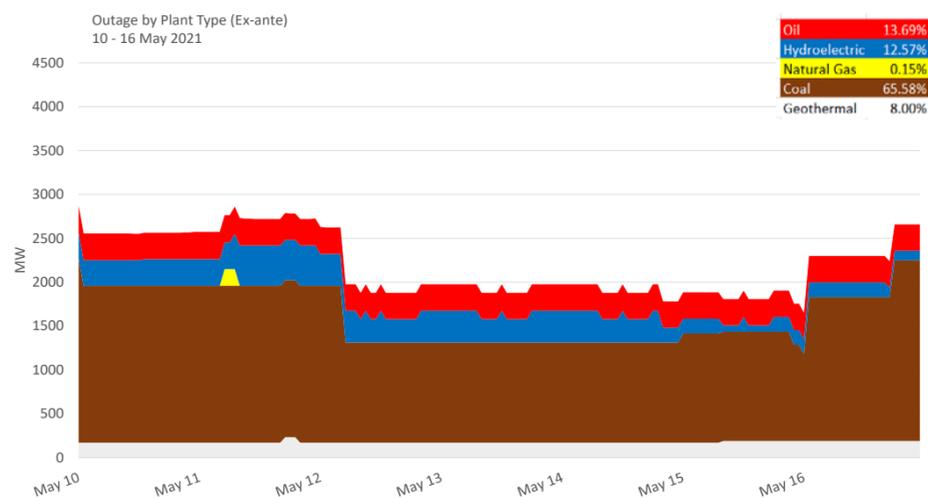
- The average demand and the reserve schedule, recorded at 12,433MW during the week of 10 - 16 May 2021, is higher than the previous at 12,044MW and the same week last year at 10,600MW. It is noted that NCR Plus (NCR, Bulacan, Cavite, Laguna and Rizal) shifted from Enhanced Community Quarantine (ECQ) to Modified Enhanced Community Quarantine (MECQ) last April 12, 2021.
- The WESM registered capacity stood at 20,924MW at the end of the week.
- The outage capacity averaged at 2,201MW, lower than last week's 3,158MW. About 66% of which involved coal plants while, in terms of category, about 74% were forced outages. In addition, due to the SPEX-Malampaya Gas Restriction some natural gas plants were derated during the subject period.
- The average effective supply this week increased to 13,685MW from 12,764MW of the previous week mainly due to decline in outage capacity. This week's effective supply is higher compared to 13,171MW during the same week last year.
- The average supply margin improved to 1,252MW this week, which is slightly above the previous week's 1,162MW but drastically lower in comparison with the same week last year's 2,751MW. The improvement in the supply margin is mainly driven by the larger increase in effective supply than the increase in demand. Despite this positive trend, there were several intervals that experienced tight margins plummeting to as low as 14MW.
- Average GWAP reached PHP 5,863/MWh, significantly lower than PHP 8,836/MWh last week but higher than PHP 1,741/MWh during the same week last year. Three (3) price spike events were observed during the week.
- The secondary cap was not imposed during the week.
- The top 5 participant groups accounted for about 79% of the offered capacity. The Herfindahl-Hirschman Index (HHI) by participant group indicated a moderately concentrated market based on the registered capacity and the offered capacity.
- Based on the effective supply, the top 5 pivotal plants during the week were –
 - Sta. Rita Natural Gas Power Plant (about 38% of the time)
 - Masinloc Coal-Fired Thermal Power Plant (about 37% of the time)
 - Sual Coal-Fired Thermal Power Plant (about 32% of the time)
 - Ilijan Natural Gas Power Plant (about 27% of the time)
 - Pagbilao Coal-Fired Thermal Power Plant (about 27% of the time)

The offer pattern analysis showed an increase in quantities for coal and hydro plants while there was a recorded decrease in quantity offered from natural gas plants due to outage. The average offered price increase was notable in hydro plants while the opposite was observed for coal plants.

IEMOP MARKET SYSTEMS ADVISORY

- No IT-related issue was advised in IEMOP's market systems from 10 - 16 May

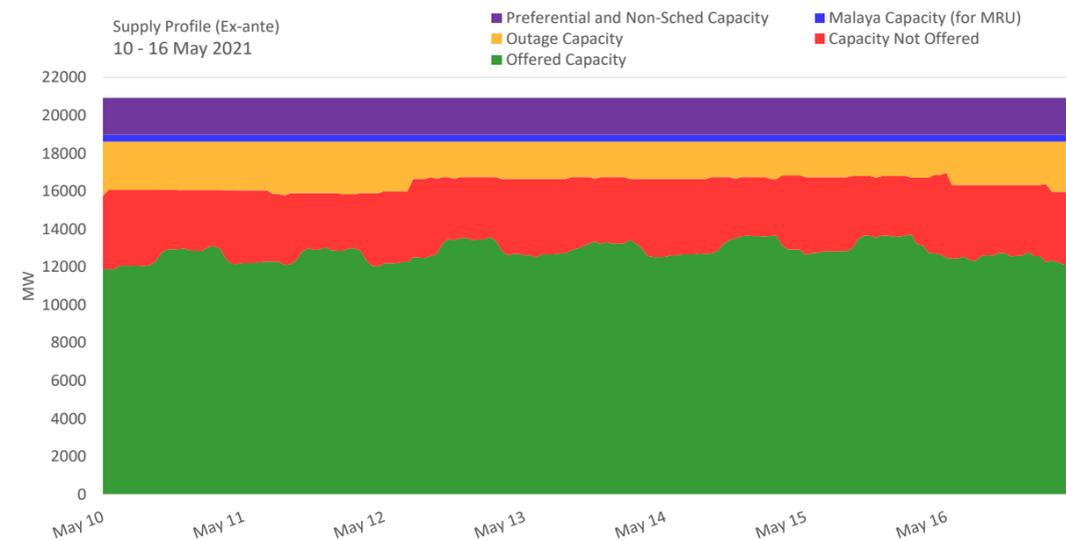
OUTAGE CAPACITY BY PLANT TYPE



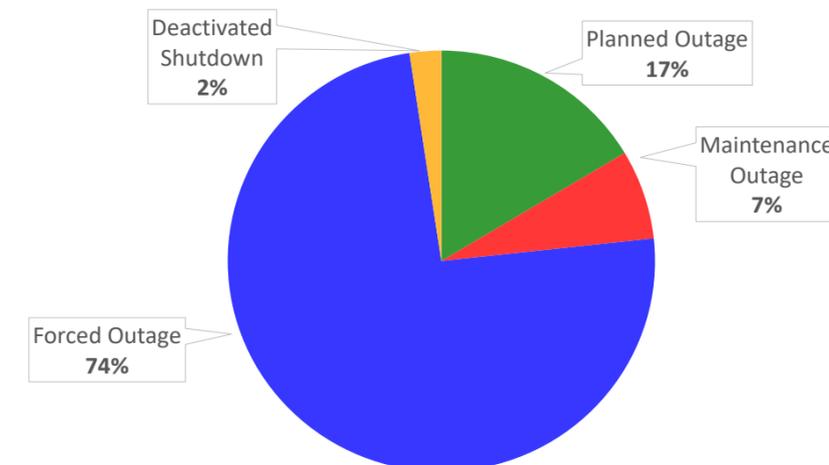
SUMMARY (PRICE, SUPPLY, DEMAND AND RESERVE SCHEDULE)

Particulars	10 - 16 May 2021	Previous Week (3 - 9 May 2021)	Same Week, Previous Year (4 - 10 May 2020)	Percent Change From		
				Previous Week	Same Week, Previous Year	
GWAP (PHP/MWh)	max	31,991.72	34,242.80	3,138.89	-6.57%	919.20%
	min.	1,800.38	2,232.73	0.00	-19.36%	-
	w. ave.	5,862.77	8,836.11	1,740.50	-33.65%	236.84%
Effective Supply (MW)	max	14,987.08	14,058.25	14,316.73	6.61%	4.68%
	min.	12,603.10	11,577.82	12,049.77	8.86%	4.59%
	ave.	13,684.52	12,763.61	13,170.99	7.22%	3.90%
System Demand (MW)	max	13,332.96	13,055.03	11,021.61	2.13%	20.97%
	min.	9,205.02	9,006.11	7,397.64	2.21%	24.43%
	ave.	11,322.29	11,108.69	9,578.98	1.92%	18.20%
Demand + Reserve Schedule (MW)	max	14,331.46	13,839.91	12,320.50	3.55%	16.32%
	min.	10,332.02	10,034.91	8,128.34	2.96%	27.11%
	ave.	12,432.50	12,044.16	10,599.50	3.22%	17.29%
Supply Margin (MW)	max	2,883.31	2,402.08	3,921.43	20.03%	-26.47%
	min.	13.61	117.92	1,353.53	-88.46%	-98.99%
	ave.	1,252.03	1,162.35	2,571.49	7.72%	-51.31%

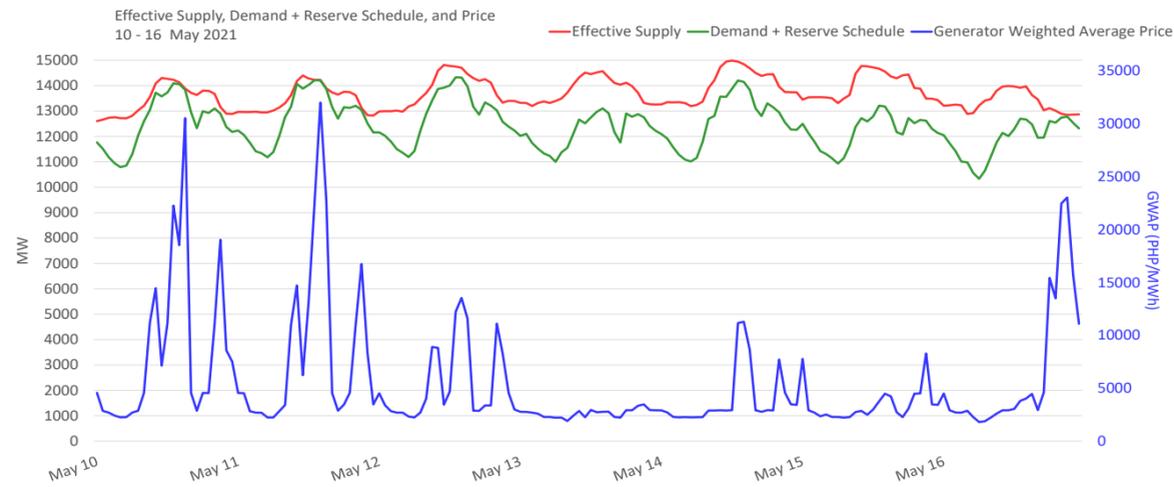
SUPPLY PROFILE



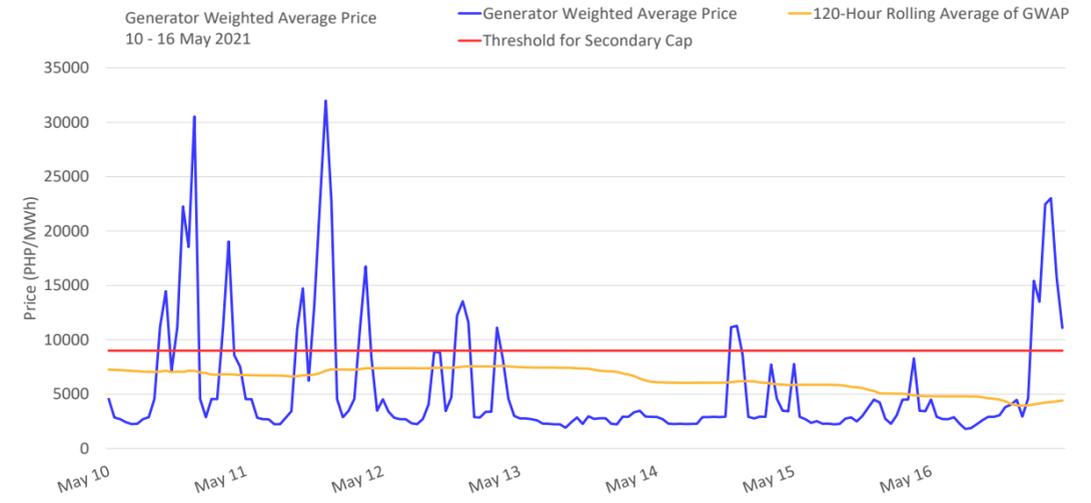
OUTAGE CAPACITY BY OUTAGE CATEGORY



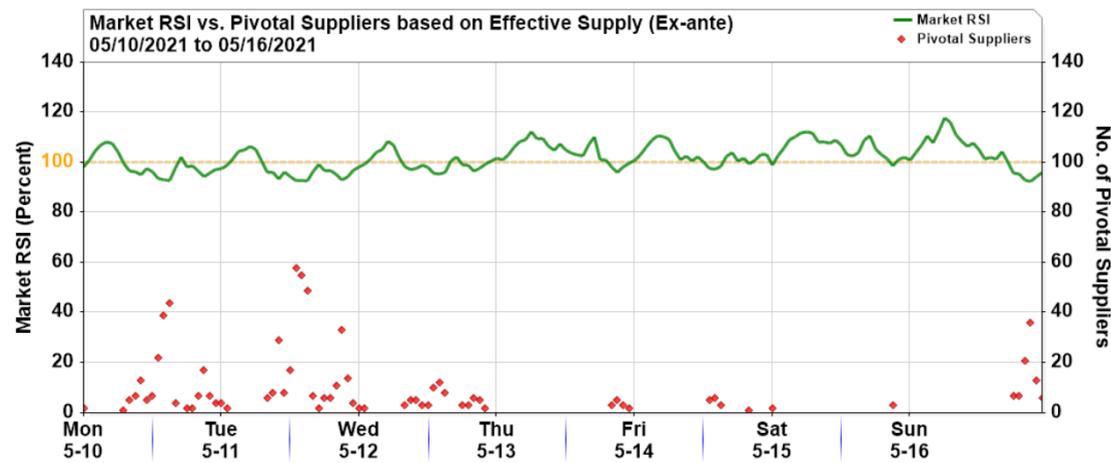
SUPPLY, DEMAND AND PRICE



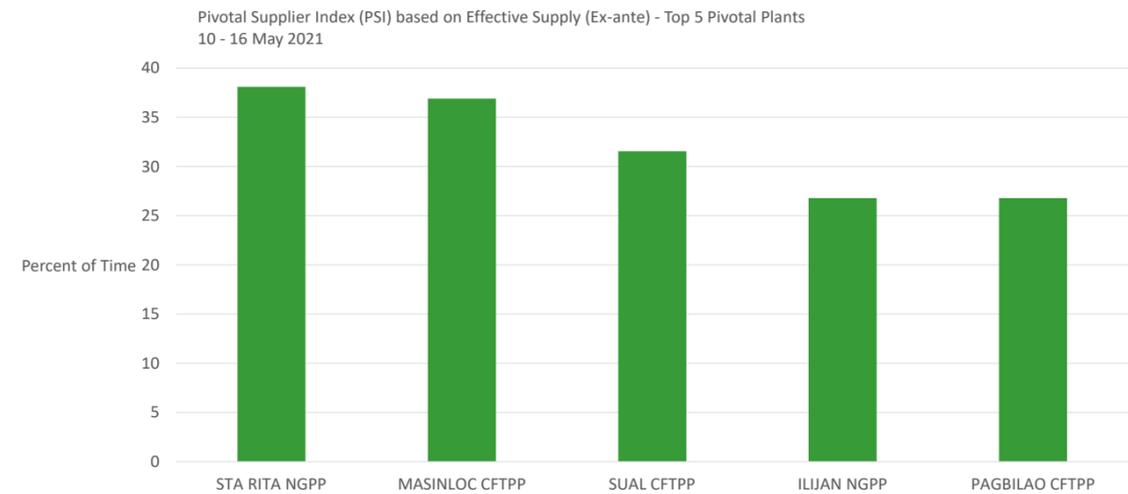
GENERATOR WEIGHTED AVERAGE PRICE



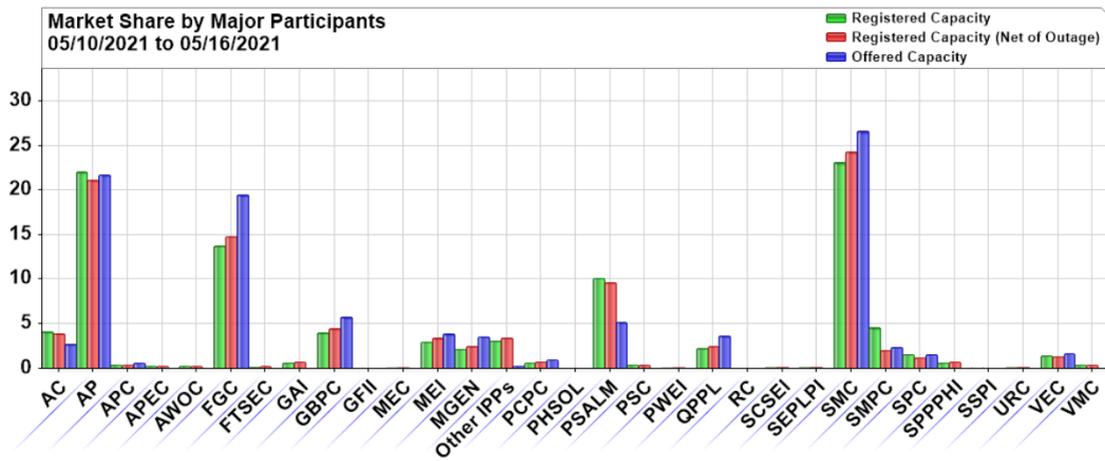
MARKET RSI VS PIVOTAL PLANTS



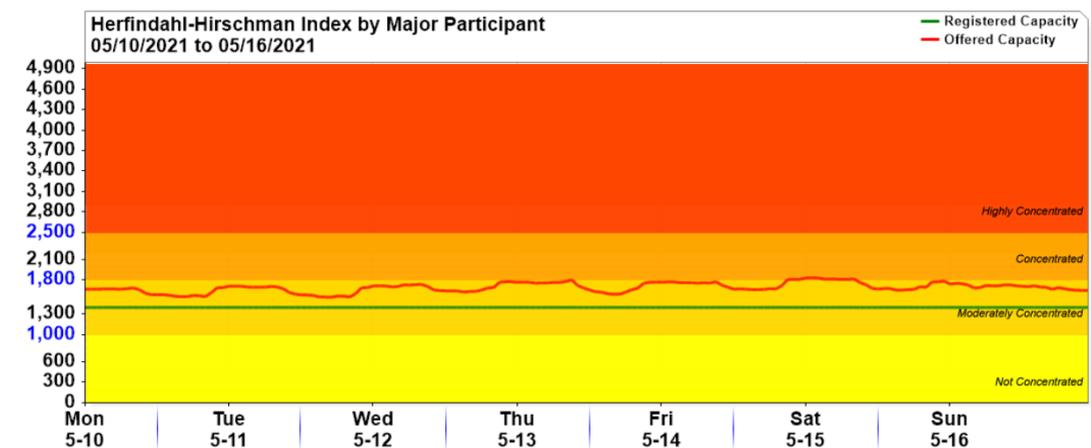
PSI



MARKET SHARE



HERFINDAHL-HIRSCHMAN INDEX



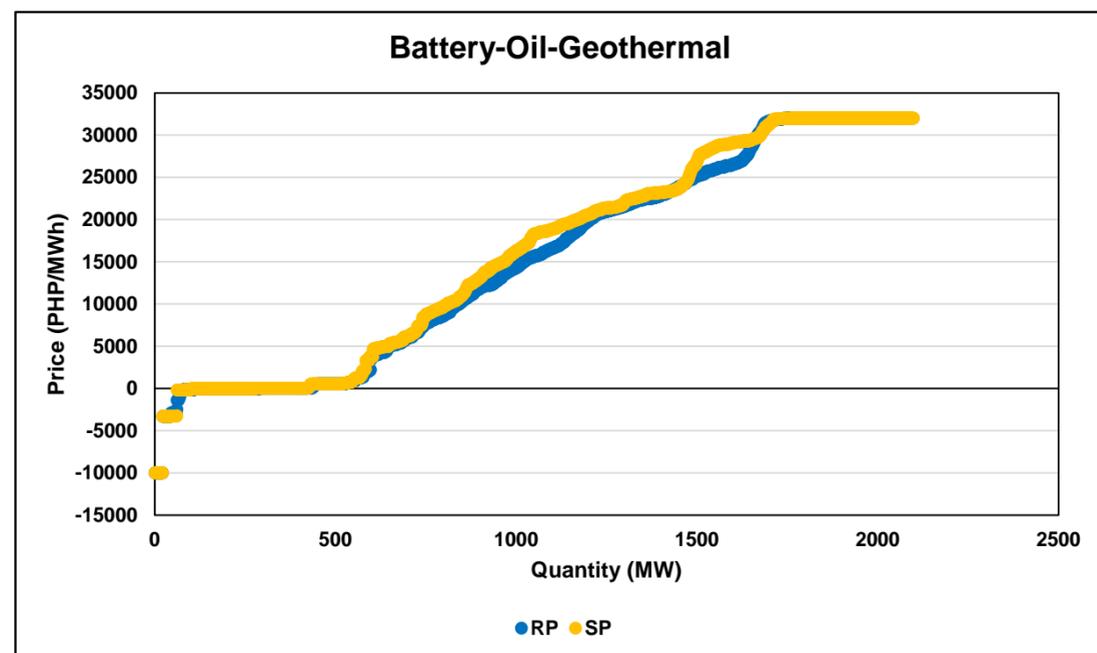
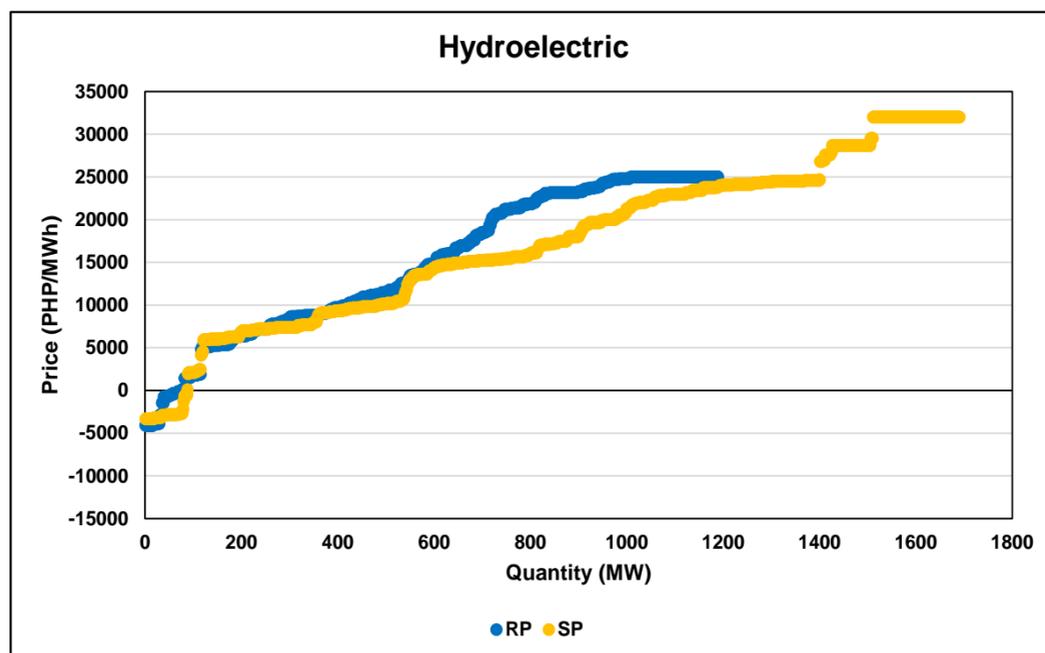
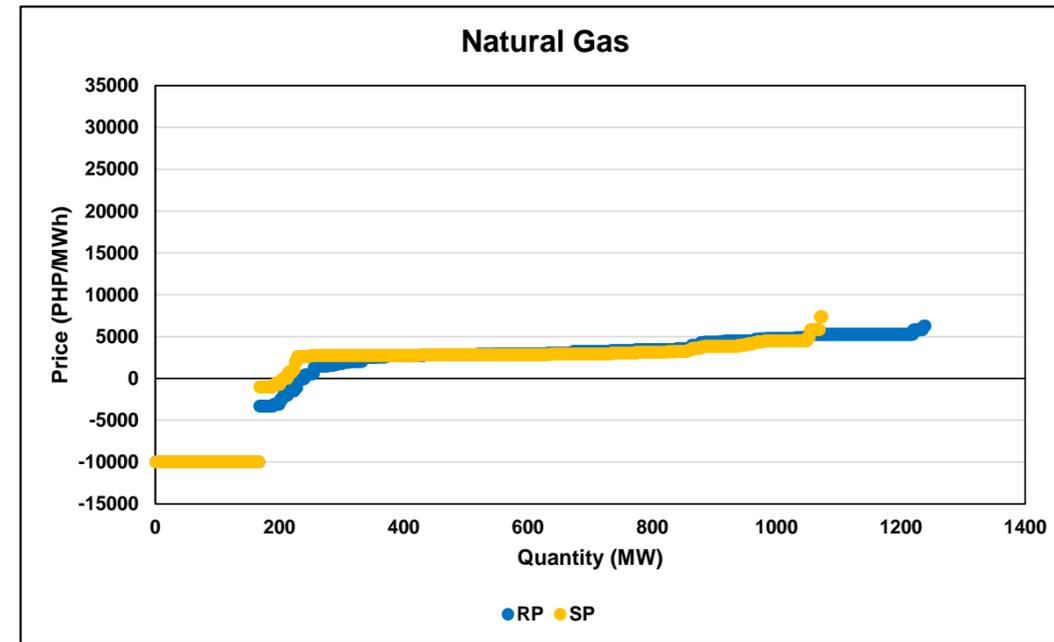
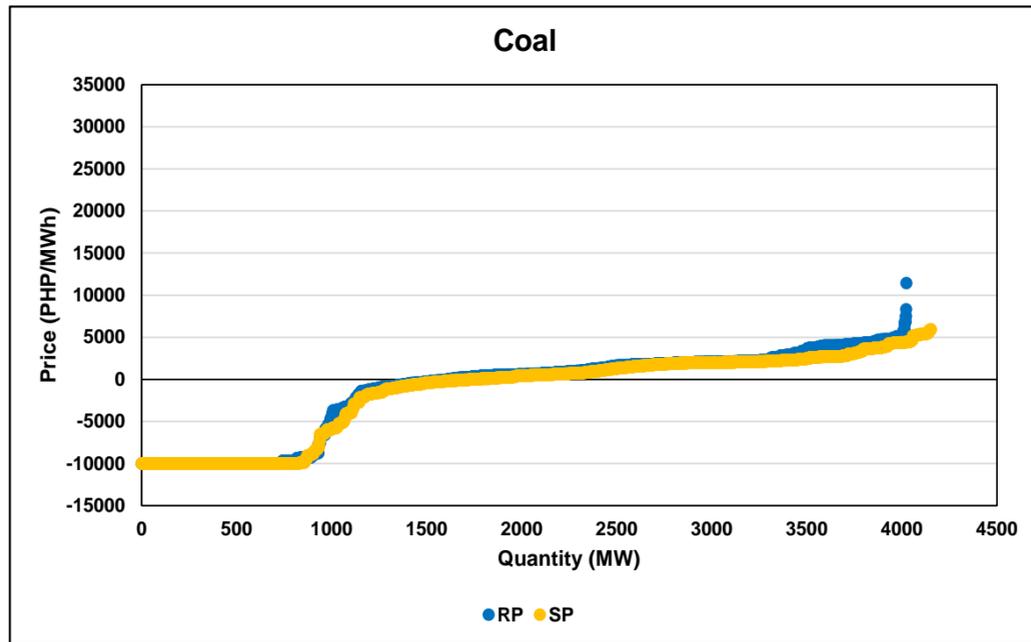
OFFER PATTERN ANALYSIS

Legend

RP: Reference Offer Price – the week of 3 - 9 May 2021 was used as a control for the comparison with the subject price

SP: Subject Offer Price – the week of 10 - 16 May 2021

Note: Pmin capacities were excluded in this Offer Pattern Analysis.



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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