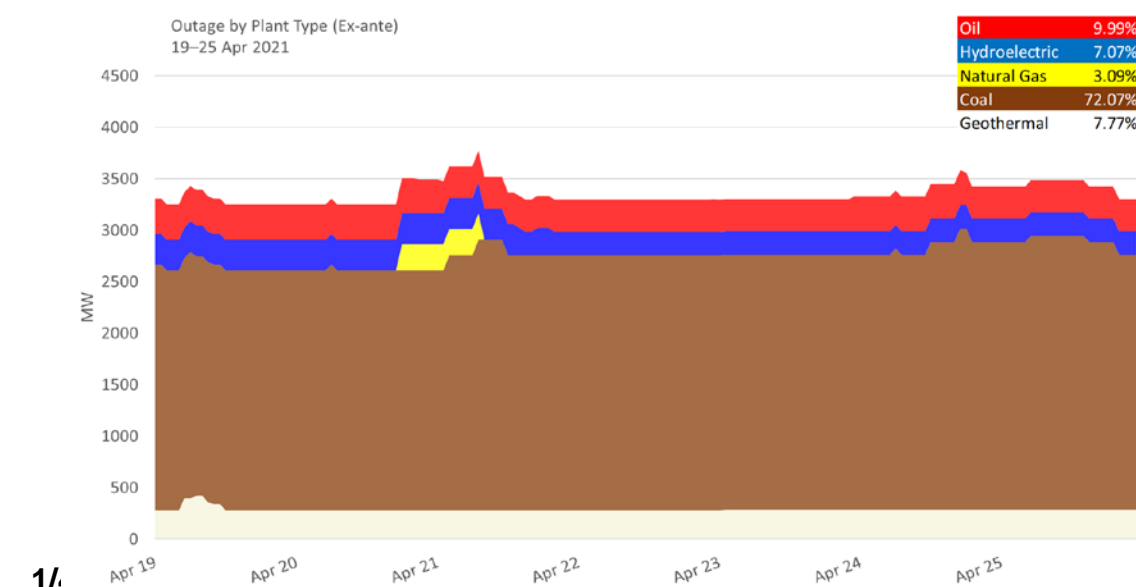


## PEMC MARKET ASSESSMENT HIGHLIGHTS

- The average demand and the reserve schedule, recorded at 11,616 MW during the week of 19–25 Apr 2021, is higher than the previous at 11,216 MW as well as the same week last year at 9,330 MW. 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.
  - An average supply margin of 1,446 MW was observed during the week, which is higher with previous week and by about -55% in comparison with the same week last year. The supply margin for the week plummeted to as low as 394 MW.
  - The WESM registered capacity stood at 20,924 MW at the end of the week.
  - The outage capacity averaged at 3,353 MW, higher than last week's 3,257 MW. About 72% of which involved coal plants while, in terms of category, about 79% were forced outages.
  - The average effective supply this week improved to 13,072 MW from 12,817 MW of the previous week mainly due to improved offered capacity from natural gas power plants. This week's effective supply is higher than the 12,560 MW during the same week last year.
  - Average GWAP reached PHP 4,203/MWh, lower than than PHP 6,355/MWh last week and higher than PHP 1,819/MWh during the same week last year. One price spike event were observed during the week.
  - The secondary price cap was not imposed during the week.
  - The top 5 participant groups accounted for about 75.5% 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 24.4% of the time)
    - Masinloc Coal-Fired Thermal Power Plant (about 23.2% of the time)
    - Ilijan Natural Gas Power Plant (about 15.5% of the time)
    - Pagbilao Coal-Fired Thermal Power Plant (about 9.5% of the time)
    - SMC-Limay Coal-Fired Thermal Power Plant (about 4.1% of the time)
  - The offer pattern analysis showed an increase in quantity of natural gas plants was due to some plants improved offered capacity. Moreover, some natural gas plants were still limited due to the SPEX-Malampaya Gas Restriction. The average price increase was notable in coal and hydro plants.
- IEMOP MARKET SYSTEMS ADVISORY**
- No IT-related issue was advised in IEMOP's market systems from 19–25 Apr 2021.

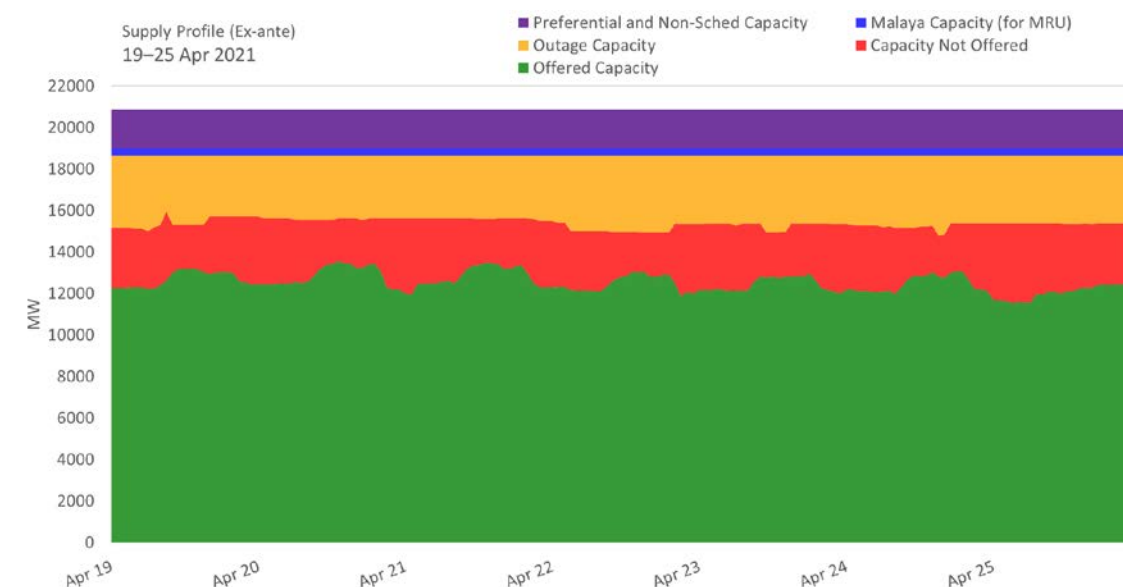
## OUTAGE CAPACITY BY PLANT TYPE



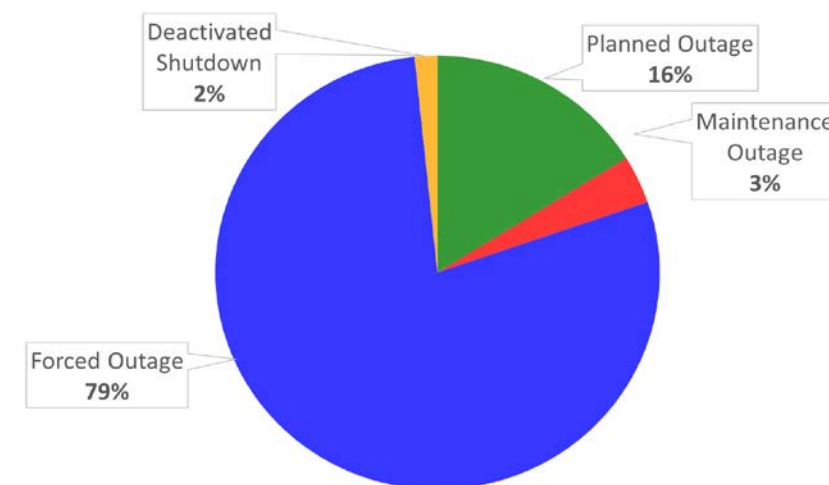
## SUMMARY (PRICE, SUPPLY, DEMAND AND RESERVE SCHEDULE)

Particulars		19–25 Apr 2021	Previous Week (12–18 Apr 2021)	Same Week, Previous Year (06–12 Apr 2020)	Percent Change From	
					Previous Week	Same Week, Previous Year
GWAP (PHP/MWh)	max	31,777.90	22,830.07	3,119.46	39.19%	918.70%
	min.	1,841.02	1,536.11	0.00	19.85%	-
	w. ave.	7,105.86	6,355.16	1,819.36	11.81%	290.57%
Effective Supply (MW)	max	14,326.86	14,266.43	13,676.15	0.42%	4.76%
	min.	11,952.21	11,756.83	11,401.40	1.66%	4.83%
	ave.	13,071.81	12,816.60	12,559.96	1.99%	4.08%
System Demand (MW)	max	12,360.49	12,413.53	9,501.51	-0.43%	30.09%
	min.	8,476.72	8,466.31	6,651.83	0.12%	27.43%
	ave.	10,514.17	10,518.77	8,303.23	-0.04%	26.63%
Demand + Reserve Schedule (MW)	max	13,636.39	13,687.04	10,673.60	-0.37%	27.76%
	min.	9,474.52	9,448.21	7,556.63	0.28%	25.38%
	ave.	11,616.11	11,654.25	9,330.05	-0.33%	24.50%
Supply Margin (MW)	max	2,742.28	2,402.08	4,476.00	14.16%	-38.73%
	min.	394.18	117.92	1,809.94	234.28%	-78.22%
	ave.	1,445.70	1,162.35	3,229.91	24.38%	-55.24%

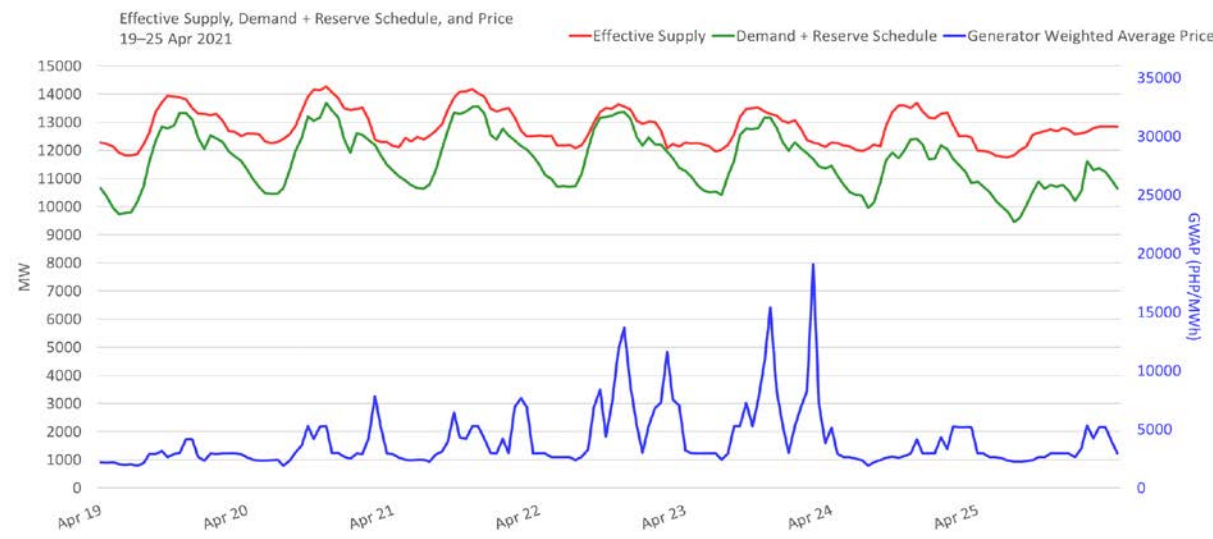
## SUPPLY PROFILE



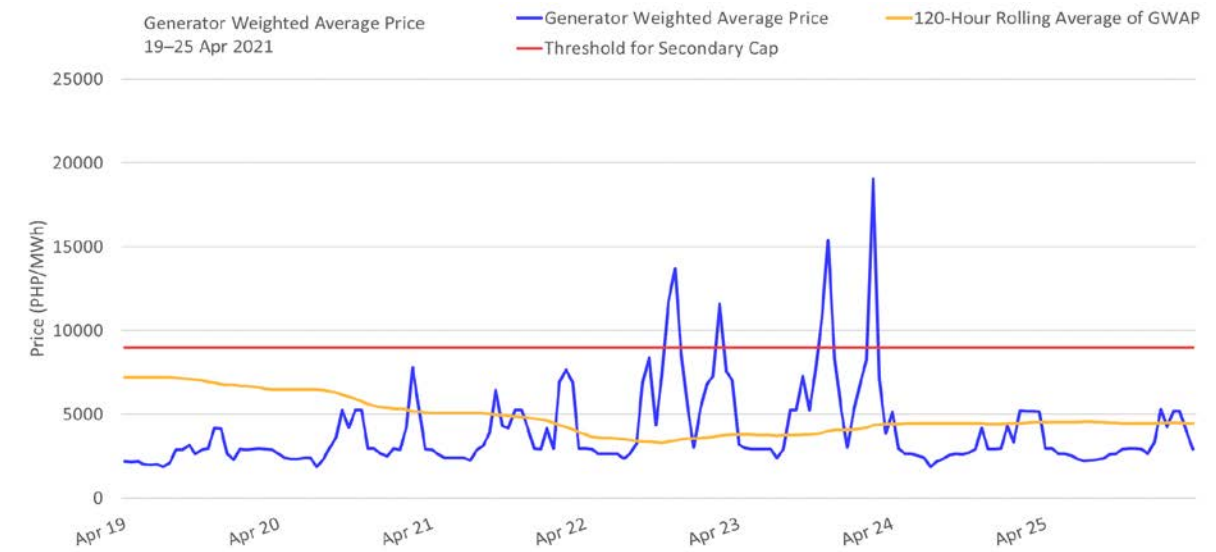
## OUTAGE CAPACITY BY OUTAGE CATEGORY



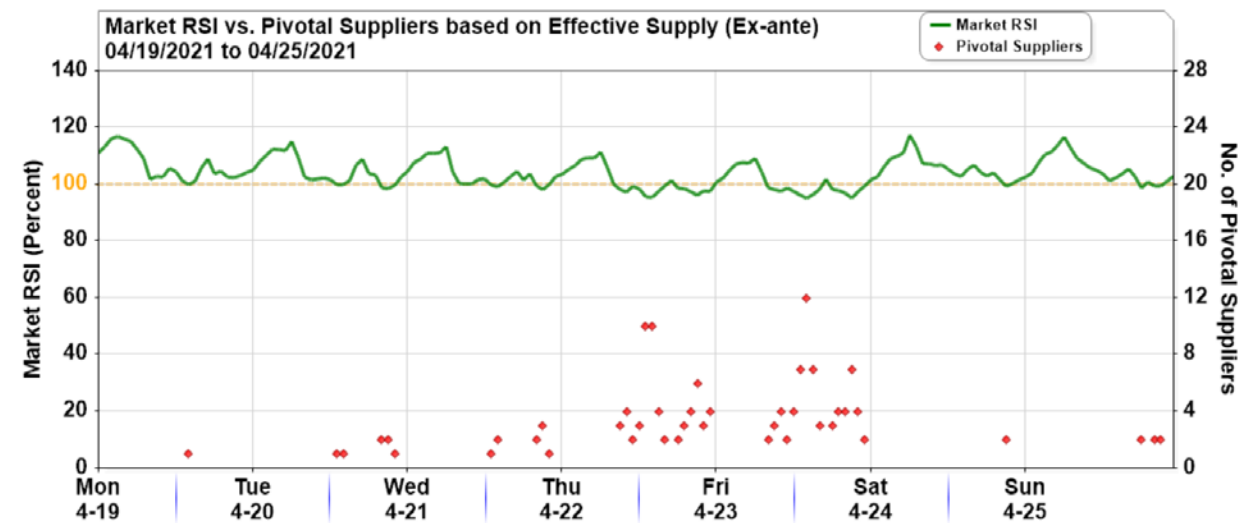
## SUPPLY, DEMAND AND PRICE



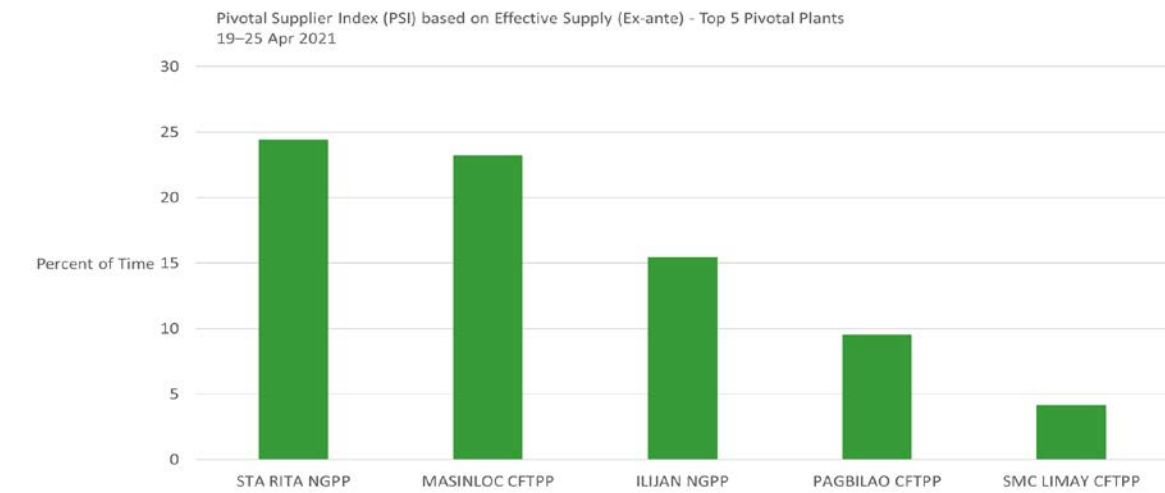
## GENERATOR WEIGHTED AVERAGE PRICE



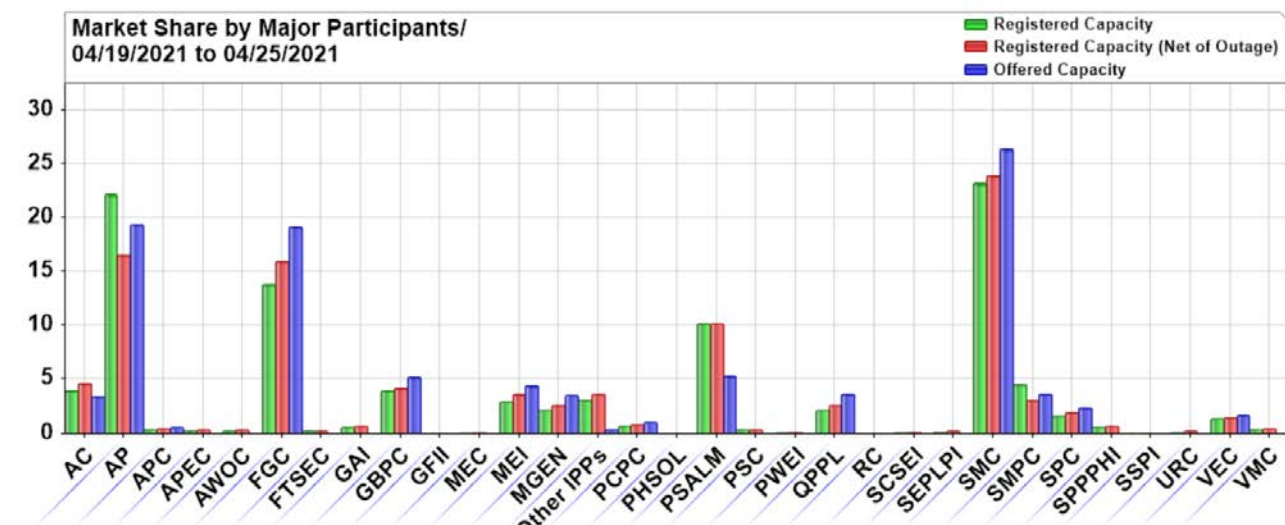
## MARKET RSI VS PIVOTAL PLANTS



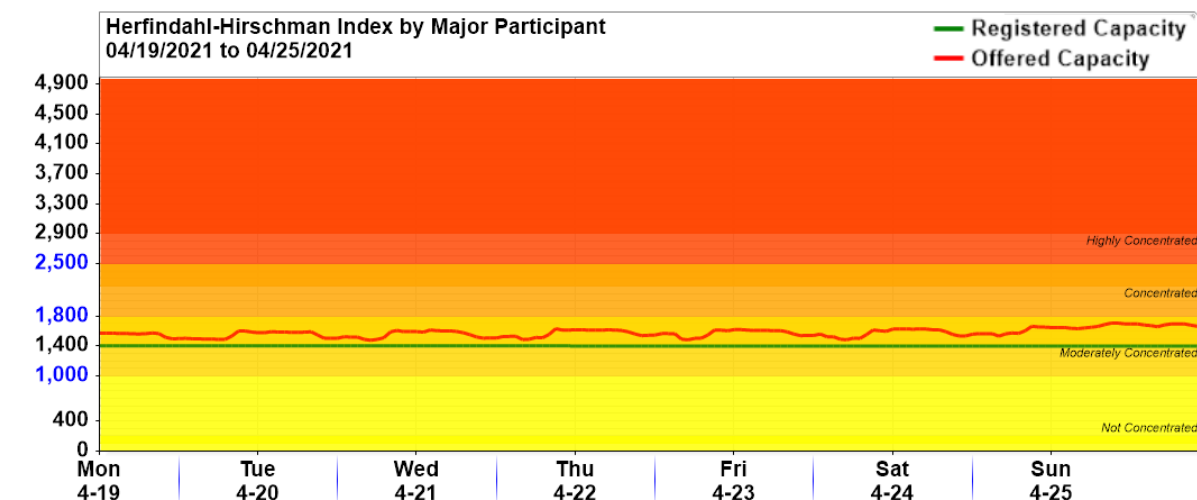
## PSI



## MARKET SHARE



## HERFINDAHL-HIRSCHMAN INDEX



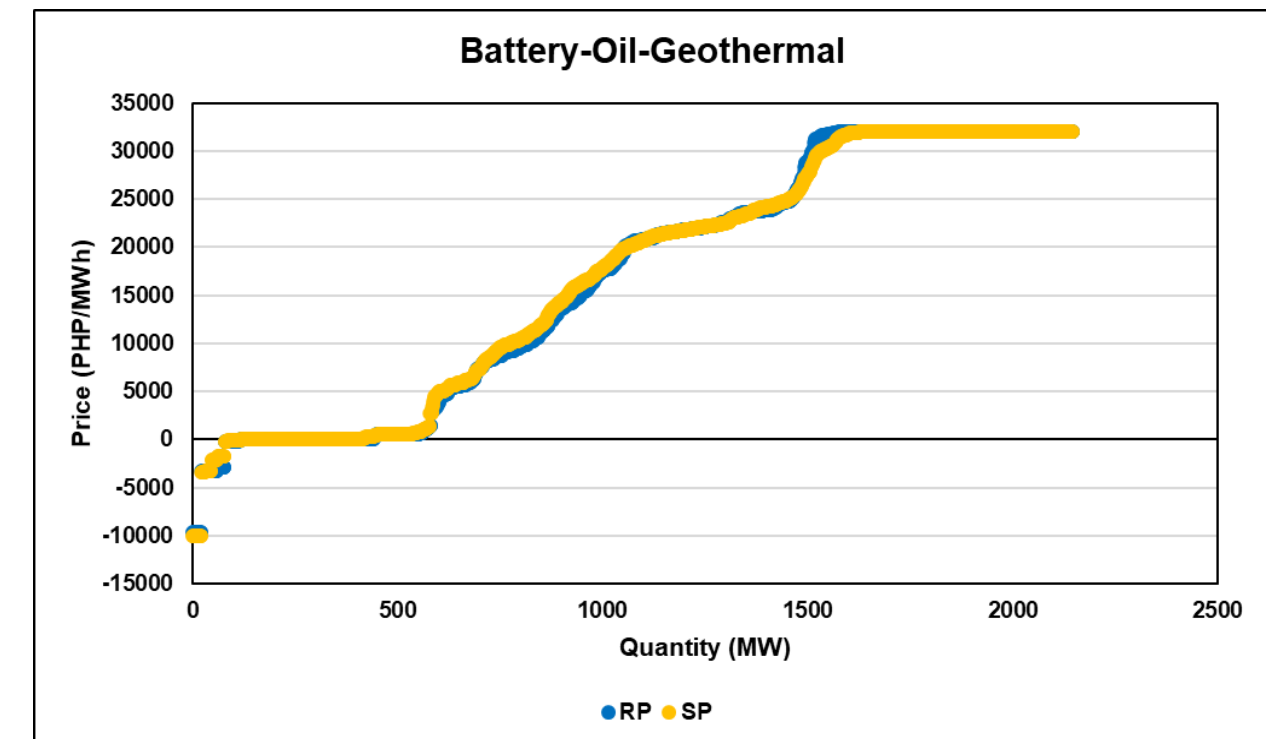
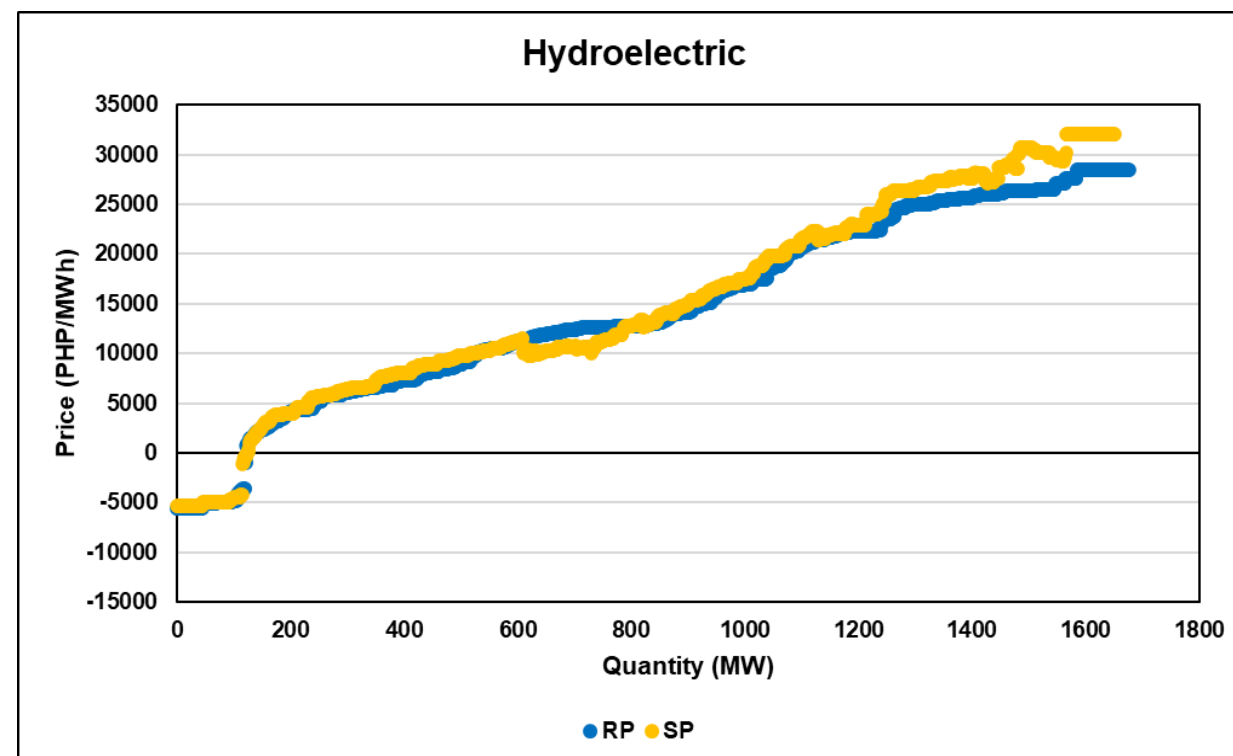
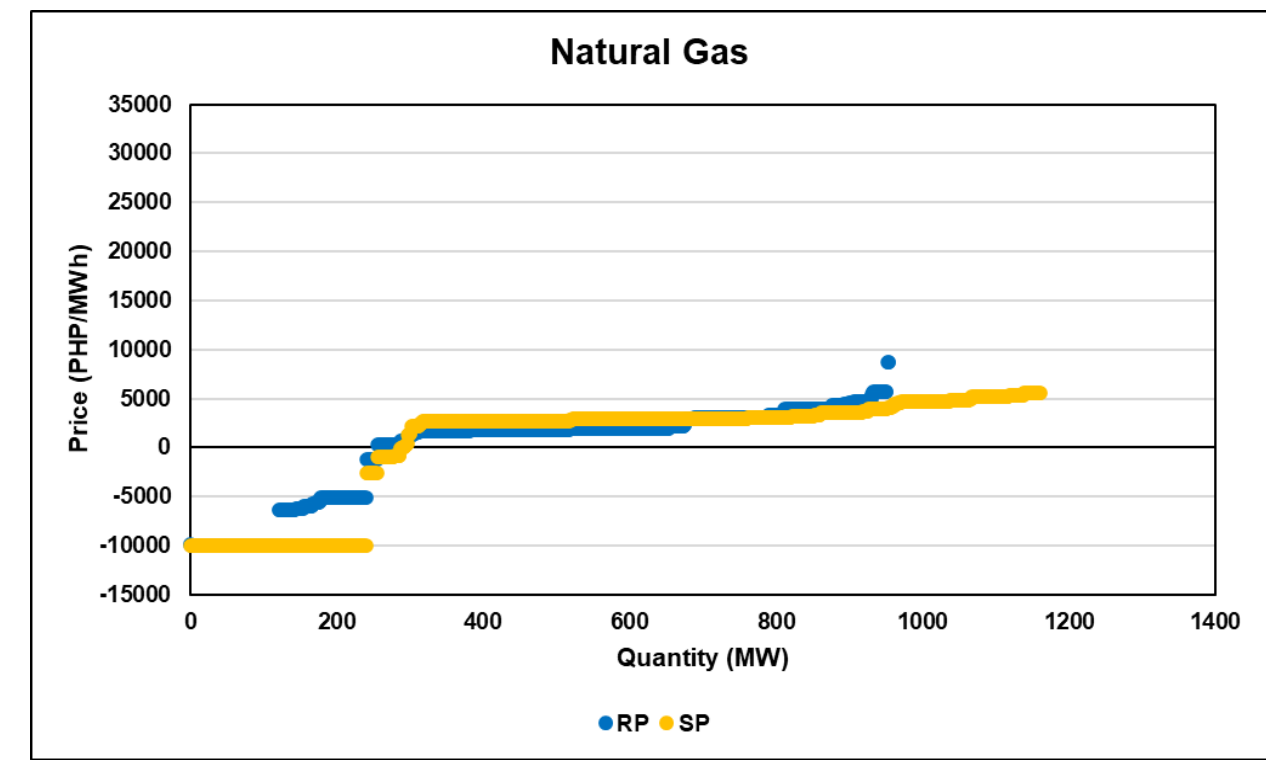
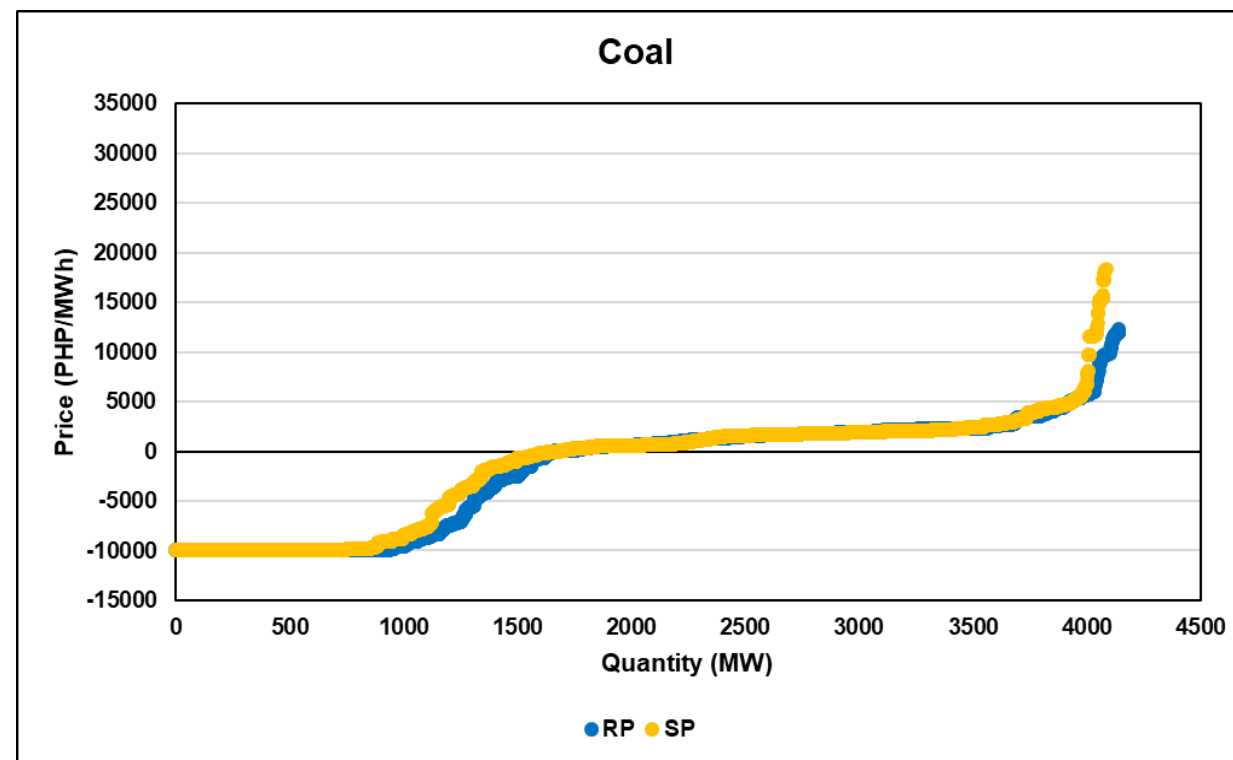
## OFFER PATTERN ANALYSIS

### Legend

RP: Reference Offer Price – the week of 12–18 Apr 2021 was used as a control for the comparison with the subject price

SP: Subject Offer Price – the week of 19–25 Apr 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 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 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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