

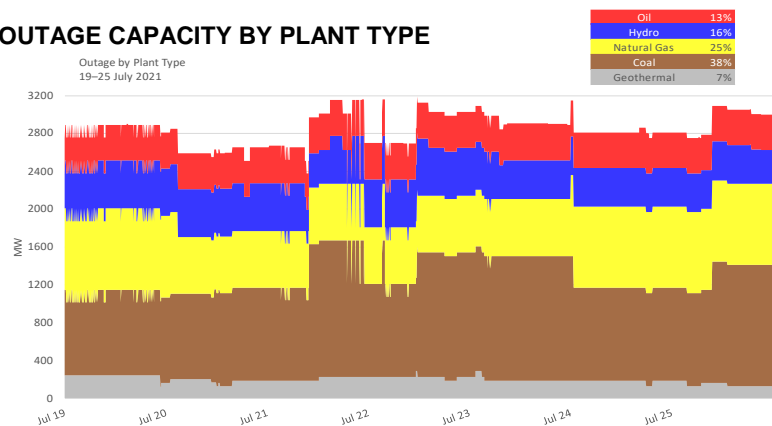
PEMC MARKET ASSESSMENT HIGHLIGHTS

- The average demand with reserve schedule, recorded at 10,550 MW during the week of 19–25 July 2021, was lower than the previous week at 11,574 MW and lower too than the same week last year at 11,132 MW. Various areas were under the ECQ, MECQ or the GCQ.¹ Festival of Sacrifice was observed on 20 July.
- The WESM registered capacity stood at 21,367 MW at the end of 25 July.
- An average supply margin of 447 MW was observed during the week, which was higher by about 77.16% relative to the previous week and lower by about 80.49% in comparison with the same week last year. The supply margin of -0.10 MW observed on 19 July (interval 20:05, which was a peak interval) was the tightest during the week. The average supply margin was 395 MW at peak intervals and 479 MW at off-peak intervals.
- The outage capacity averaged at 2,845 MW, higher than last week's 2,638 MW. About 38.44% of the 2,845 MW involved coal plants while, in terms of category, about 50.60% were forced outages.
- The average effective supply during the week was 10,997 MW, lower than the previous week's 11,826 MW and lower too than the 13,423 MW during the same week last year. Ramping limitations in generators' offers persisted which caused the lower effective supply and at times load curtailment on the MMS' solution.
- Average GWAP was recorded at PHP 2,814/MWh from PHP 7,508/MWh last week. This is higher than the PHP 2,046/MWh during the same week last year.
- The secondary price cap was not imposed during the week.
- The top 5 participant groups accounted for about 77.46% of the offered capacity. The Herfindahl-Hirschman Index (HHI) by participant group indicated a moderately concentrated market based on the registered capacity and the registered capacity (net of outage).
- Based on the effective supply, the top 5 pivotal plants during the week were –
 - Sual Coal-Fired Thermal Power Plant (about 97.52% of the time)
 - Masinloc Coal-Fired Thermal Power Plant (about 96.28% of the time)
 - Sta. Rita Natural Gas Power Plant (about 93.85% of the time)
 - Pagbilao Coal-Fired Thermal Power Plant (about 85.42% of the time)
 - SMC Limay Coal-Fired Thermal Power Plant (about 84.97% of the time)
- The offer pattern analysis showed a slight increase in offer quantity for the hydro plants. Further, the average offer price showed a notable increase for the coal and oil plants, in contrast with the hydro plants.

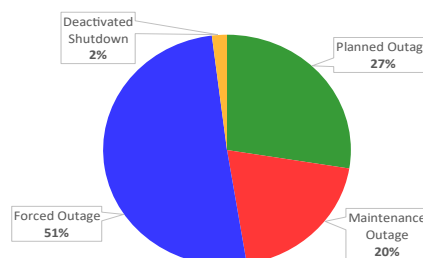
IEMOP MARKET SYSTEMS ADVISORY

- No IT-related issue was advised in IEMOP's market systems from 19–25 July 2021.

OUTAGE CAPACITY BY PLANT TYPE



OUTAGE CAPACITY BY OUTAGE CATEGORY

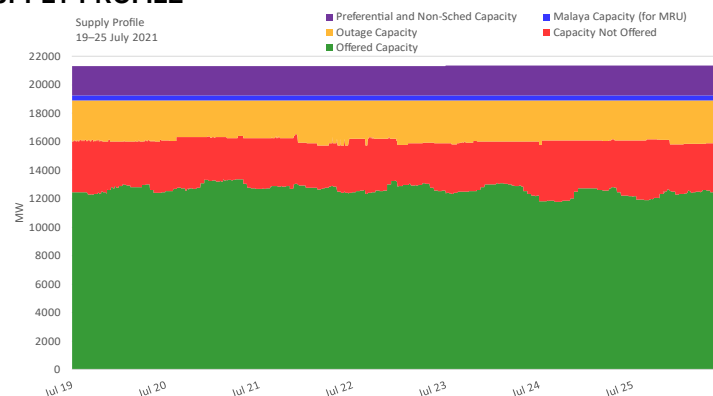


¹ From 16–22 July – Davao de Oro, Davao del Norte and Davao del Sur were under the MECQ; Aklan, Capiz and Bacolod City were under the GCQ "with heightened restrictions"; and the NCR was under the GCQ. From 23–31 July – the NCR, Ilocos Norte, Ilocos Sur, Davao de Oro and Davao del Norte were under the GCQ "with heightened restrictions"; and Davao del Sur was under the GCQ. From 16–31 July – Iloilo, Iloilo City, Cagayan de Oro City and Gingoog City were under the ECQ; Bataan, Butuan City and Davao Occidental were under the MECQ; Cagayan, Laguna, Lucena City, Naga City (in Camarines Sur), Antique, Negros Oriental, Zamboanga del Sur, Misamis Oriental and Davao City were under the GCQ "with heightened restrictions"; and Apayao, Baguio City, Isabela, Santiago City, Nueva Vizcaya, Quirino, Bulacan, Cavite, Batangas, Rizal, Quezon, Puerto Princesa City, Guimaras, Negros Occidental, Zamboanga del Norte, Zamboanga City, Zamboanga Sibugay, Dinagat Islands, Agusan del Norte, Surigao del Norte, Agusan del Sur, Surigao del Sur, Cotabato City, Cotabato, Sultan Kudarat, South Cotabato, General Santos City, Sarangani and Davao Oriental were under the GCQ. The rest of the country was under the MGCQ.

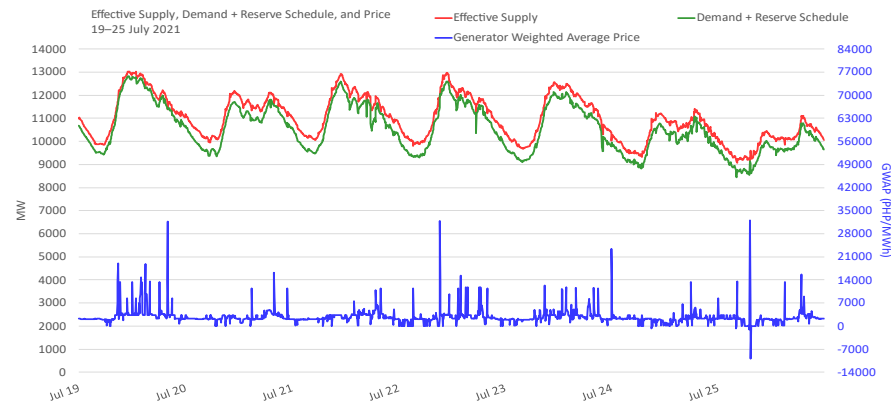
SUMMARY (PRICE, SUPPLY, DEMAND AND RESERVE SCHEDULE)

| Particulars | | 19–25 July 2021 | Previous Week (12–18 July 2021) | Same Week, Previous Year (13–19 July 2020) | Percent Change From | |
|--------------------------------|---------|-----------------|------------------------------------|--|---------------------|--------------------------|
| | | | | | Previous Week | Same Week, Previous Year |
| GWAP (PHP/MWh) | max | 31,976.88 | 32,742.82 | 2,697.69 | -2.34% | 1,085.34% |
| | min | -9,898.13 | 0.00 | 1,376.77 | - | -818.94% |
| | w. ave. | 2,813.86 | 7,508.11 | 2,046.31 | -62.52% | 37.51% |
| Effective Supply (MW) | max | 13,035.05 | 13,664.49 | 14,747.09 | -4.61% | -11.61% |
| | min | 9,065.72 | 9,715.57 | 12,052.32 | -6.69% | -24.78% |
| | ave. | 10,996.88 | 11,826.31 | 13,423.47 | -7.01% | -18.08% |
| System Demand (MW) | max | 11,938.64 | 12,795.37 | 12,151.63 | -6.70% | -1.75% |
| | min | 7,587.65 | 8,269.30 | 8,155.45 | -8.24% | -6.96% |
| | ave. | 9,526.19 | 10,639.26 | 10,117.34 | -10.46% | -5.84% |
| Demand + Reserve Schedule (MW) | max | 12,826.57 | 13,658.88 | 13,272.50 | -6.09% | -3.36% |
| | min | 8,450.65 | 9,231.20 | 8,927.75 | -8.46% | -5.34% |
| | ave. | 10,549.73 | 11,573.91 | 11,131.51 | -8.85% | -5.23% |
| Supply Margin (MW) | max | 953.47 | 708.04 | 3,418.30 | 34.66% | -72.11% |
| | min | -0.10 | -29.90 | 1,225.31 | 99.66% | -100.01% |
| | ave. | 447.15 | 252.40 | 2,291.96 | 77.16% | -80.49% |

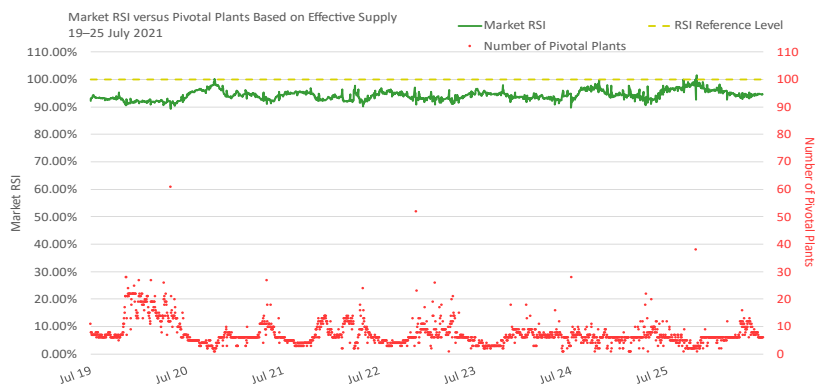
SUPPLY PROFILE



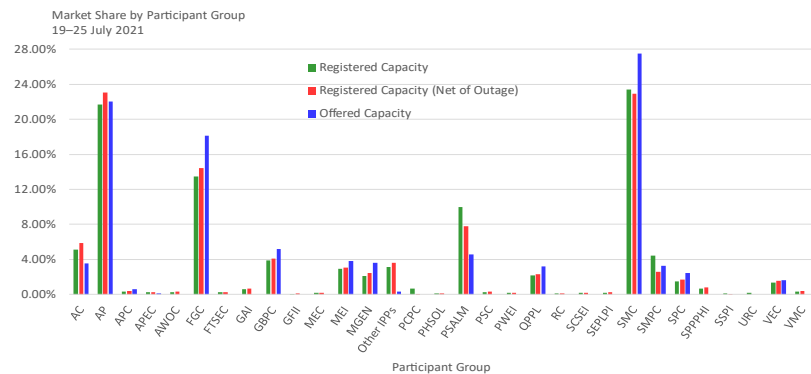
SUPPLY, DEMAND AND PRICE



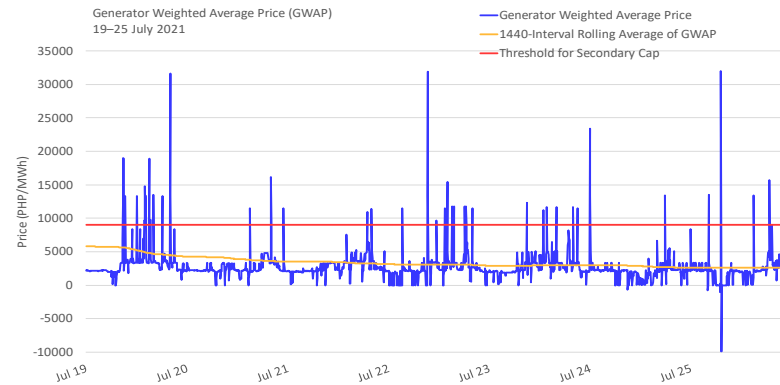
MARKET RSI VS PIVOTAL PLANTS



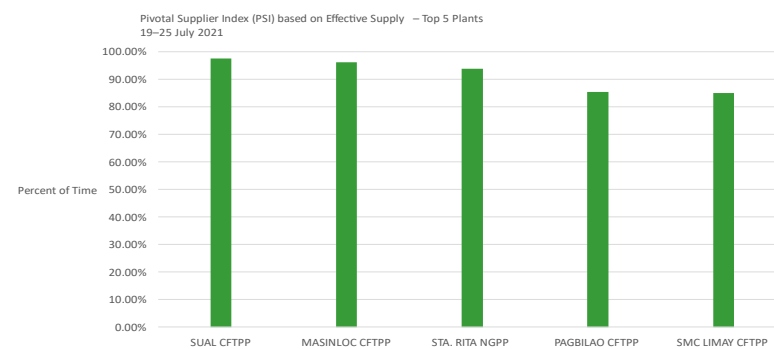
MARKET SHARE



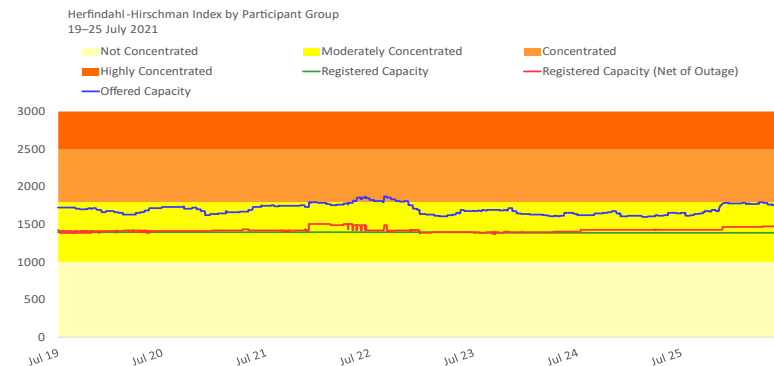
GENERATOR WEIGHTED AVERAGE PRICE



PSI



HERFINDAHL-HIRSCHMAN INDEX



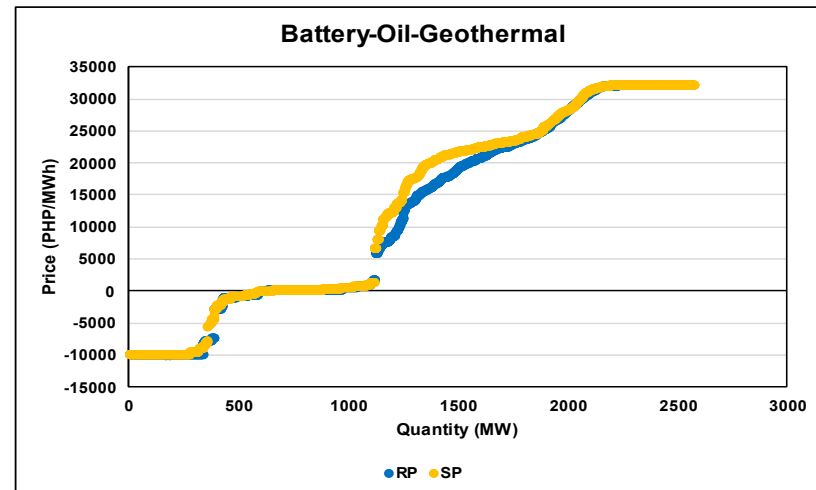
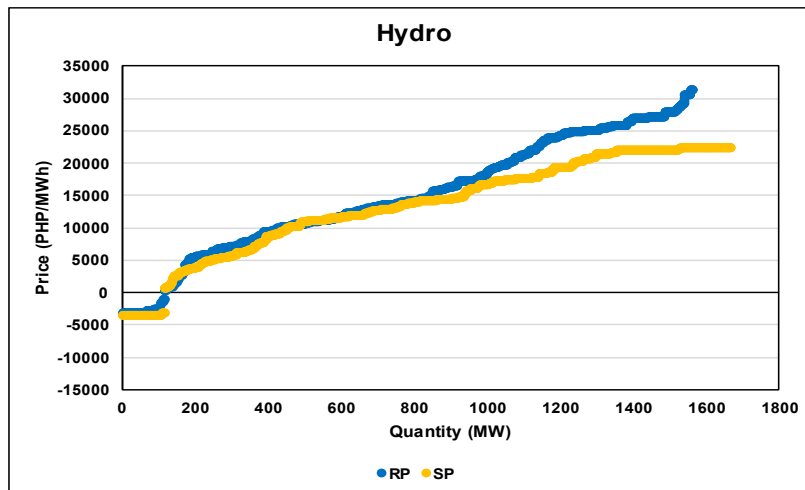
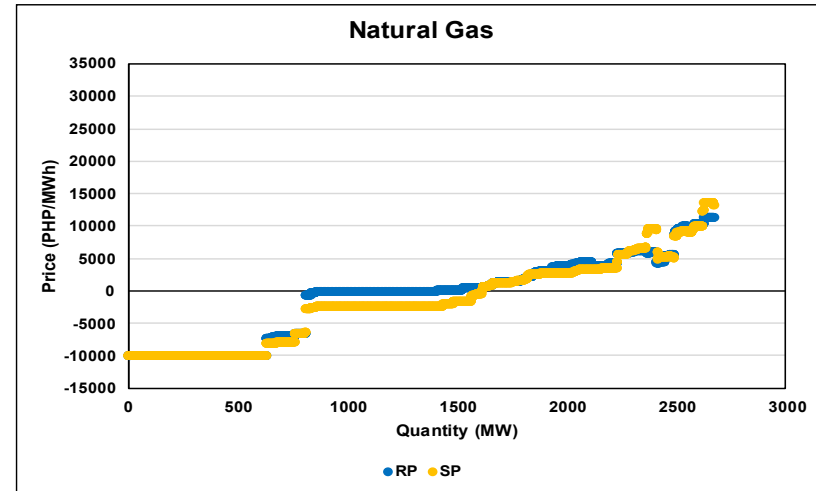
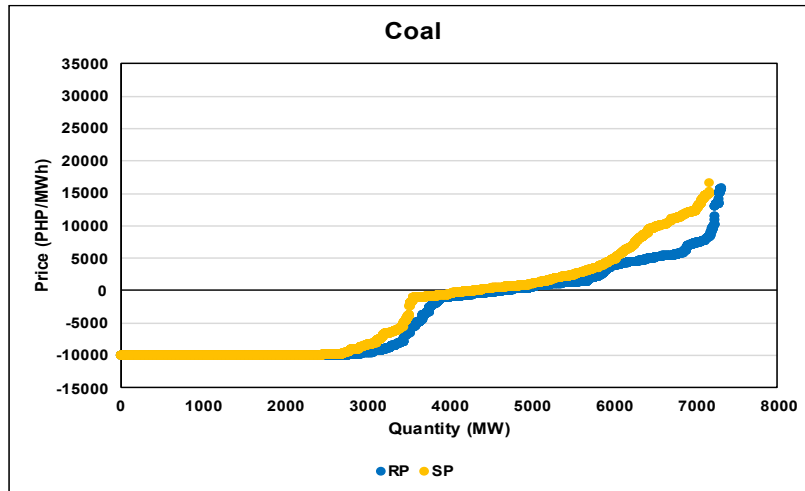
OFFER PATTERN ANALYSIS

Legend

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

SP: Subject Offer Price – the week of 19–25 July 2021

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



GLOSSARY

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 or (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 at a trading interval. For trading intervals affected by the price substitution methodology (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. weekly, monthly or some other period).

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 factors affecting the supply per trading interval, which include, among others, the offered capacity, outage capacity and ancillary services schedule.

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

REGISTERED CAPACITY - The capacity registered by a generator with the WESM.

REGISTERED CAPACITY (NET OF OUTAGE) - The capacity registered by a generator with the WESM less capacity on outage.

OFFERED CAPACITY - The offer to supply electricity submitted by a generator per trading interval.

METERED QUANTITY - The quantity of electricity generated by a generator per trading interval.

SPOT TRANSACTION - The quantity of electricity (per trading interval) sold to the WESM by a generator net of bilateral contract declaration accounted for in the settlement.

ANCILLARY SERVICES SCHEDULES - The quantity scheduled by the System Operator to provide reserve capacity per trading interval.

EFFECTIVE SUPPLY - The effective supply is equal to the offered capacity of all scheduled generators, nominated loading level of nonscheduled generators and projected output of preferential dispatch generators adjusted for any security limit and ramp rate. Scheduled output of generators on testing and commissioning, through the imposition of security limit by the System Operator, is accounted for in the effective supply. Also included is the scheduled output of the Malaya generator when it is called to run as a Must Run Unit.

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