

PEMC MARKET ASSESSMENT HIGHLIGHTS

• The commercial operations of the Enhanced Wholesale Electricity Spot Market (WESM) Design and Operations started on 26 June at 12:05 AM (interval 00:05).

• The WESM registered capacity stood at 21,016 MW at the end of 04 July 2021.

• The average demand with reserve schedule, recorded at 11,594 MW during the period of 26 June–04 July 2021, was lower than the previous week at 11,833 MW but higher than the same week last year at 11,367 MW. Various areas were under the MECQ or the GCQ.¹

• An average supply margin of 272 MW was observed during the period, which was lower by about 75.55% relative to the previous week and by about 87.18% in comparison with the same week last year. The tightest supply margin of ~5 MW was observed on 26 June (interval 20:10, which was a peak interval). The average supply margin at peak intervals was 218 MW while at off-peak intervals, the average was 308 MW.

• The outage capacity averaged at 2,038 MW, slightly lower than last week's 2,066 MW. About 64.68% of this involved coal plants while, in terms of category, about 54.04% were forced outages.

• The average effective supply during the period was 11,866 MW, lower than the 12,943 MW of the previous period and the 13,485 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 7,583/MWh from PHP 7,196/MWh last week. This is significantly higher than the PHP 2,144/MWh during the same week last year. An administered price was used during the IEMOP-initiated market intervention on 28 June (interval 13:40).

• The secondary price cap was imposed at 369 intervals out of the 2,592 intervals of the period (about 14.24% of the time).

• The top 5 participant groups accounted for about 75.17% of the offered capacity. The Herfindahl-Hirschman Index (HHI) by participant group indicated a moderately concentrated market based on the registered capacity, registered capacity (net of outage) and the offered capacity.

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

1. Sual Coal-Fired Thermal Power Plant (about 99.88% of the time)
2. Ilijan Natural Gas Power Plant (about 99.73% of the time)
3. Sta. Rita Natural Gas Power Plant (about 98.46% of the time)
4. Masinloc Coal-Fired Thermal Power Plant (about 98.19% of the time)
5. SMC Limay Coal-Fired Thermal Power Plant (about 93.90% of the time)

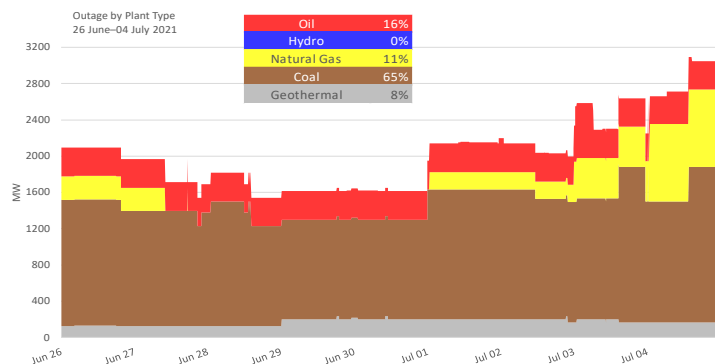
• The offer pattern analysis showed a significant increase in offer quantities for all the plant types, especially coal and natural gas. Meanwhile, the average offer price showed a notable decrease for the coal, natural gas and battery-oil-geothermal plants.

Note: The covered period for the analysis of the Subject Price (SP) was adjusted to include the commencement of the Enhanced WESM Design and Operations (EWDO) on 26 June 2021. Moreover, in EWDO, Pmin quantities are already considered in the Offer Pattern Analysis which resulted in lower Average Subject Prices and higher offer quantities for previously nonzero Pmin plants.

IEMOP MARKET SYSTEMS ADVISORY

• IEMOP declared a market intervention in Luzon and Visayas on 28 June (interval 13:40) due to non-generation of RTD schedule.

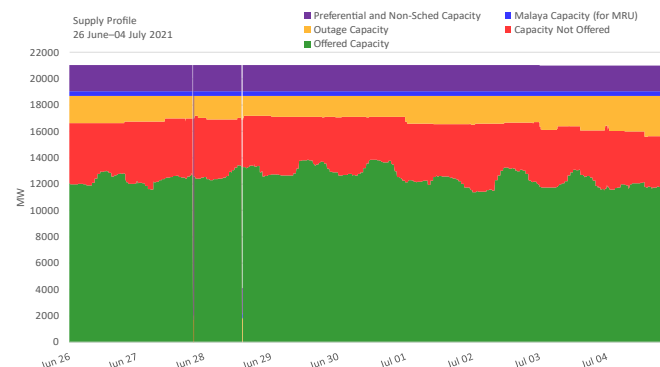
OUTAGE CAPACITY BY PLANT TYPE



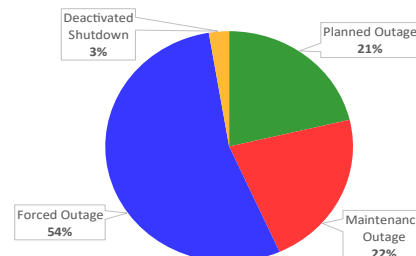
SUMMARY (PRICE, SUPPLY, DEMAND AND RESERVE SCHEDULE)

Particulars		26 June–04 July 2021	Previous Week (21–25 June 2021)	Same Week, Previous Year (22–28 June 2020)	Percent Change From	
					Previous Week	Same Week, Previous Year
GWAP (PHP/MWh)	max	33,653.87	32,390.80	6,256.03	3.90%	437.94%
	min.	-619.53	2,234.63	472.60	-127.72%	-231.09%
	w. ave.	7,583.32	7,195.72	2,144.21	5.39%	253.66%
Effective Supply (MW)	max	14,313.61	14,138.90	14,751.63	1.24%	-2.97%
	min.	9,614.87	12,069.10	12,167.20	-20.33%	-20.98%
	ave.	11,865.66	12,943.32	13,485.30	-8.33%	-12.01%
System Demand (MW)	max	13,133.75	12,539.62	12,647.85	4.74%	3.84%
	min.	8,269.57	8,923.84	8,168.38	-7.33%	1.24%
	ave.	10,622.01	10,845.21	10,257.53	-2.06%	3.55%
Demand + Reserve Schedule (MW)	max	14,208.44	13,545.52	13,804.75	4.89%	2.92%
	min.	9,217.57	9,922.63	9,153.58	-7.11%	0.70%
	ave.	11,594.08	11,832.76	11,367.17	-2.02%	2.00%
Supply Margin (MW)	max	738.68	2,681.49	3,651.93	-72.45%	-79.77%
	min.	-4.75	30.06	820.95	-115.81%	-100.58%
	ave.	271.58	1,110.57	2,118.12	-75.55%	-87.18%

SUPPLY PROFILE



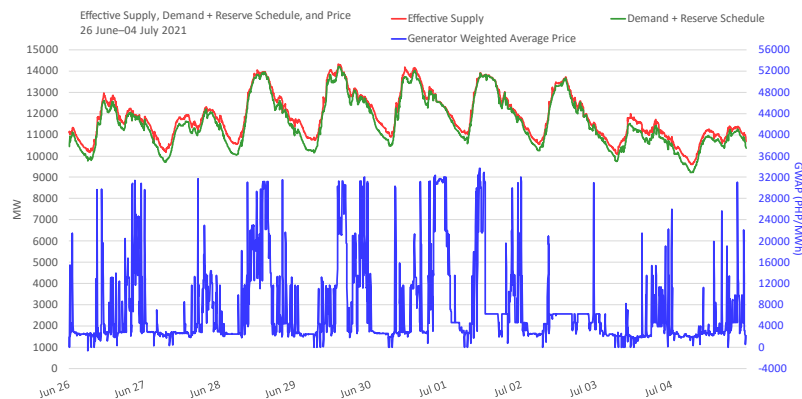
OUTAGE CAPACITY BY OUTAGE CATEGORY



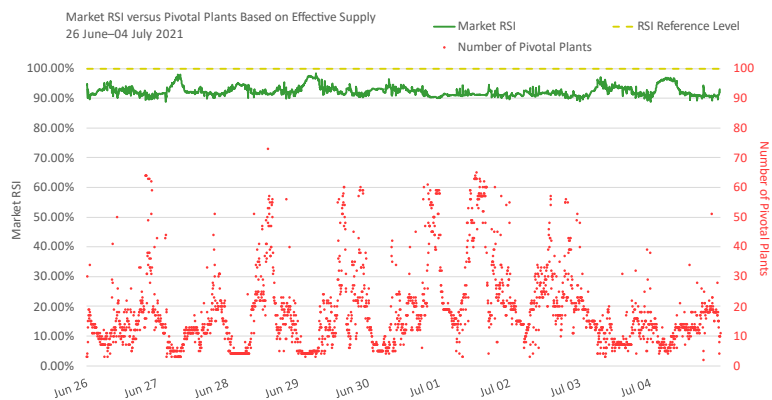
¹ From 16–30 June – Cagayan, Santiago City, Apayao, Ifugao, Lucena City, Bataan, Puerto Princesa City, Naga City, Iloilo City, Negros Oriental, Zamboanga City, Zamboanga Sibugay, Zamboanga del Sur, Zamboanga del Norte, Cagayan de Oro City, Davao City, Butuan City, Agusan del Sur, Dinagat Islands and Surigao del Sur were under the MECQ; Rizal, Laguna and Cavite were under the GCQ "with heightened restrictions"; the NCR and Bulacan were under the GCQ with some restrictions; Baguio City, Kalinga, Mountain Province, Abra, Benguet, Isabela, Nueva Vizcaya, Quirino, Batangas, Quezon, Iligan City, Davao del Norte, South Cotabato, General Santos City, Sultan Kudarat, Sarangani, Cotabato, Lanao del Sur and Cotabato City were under the GCQ; and the rest of the country was under the MGCC.

From 01–15 July – Cagayan, Bataan, Lucena City, Puerto Princesa City, Naga City, Iloilo City, Negros Oriental, Zamboanga del Norte, Zamboanga del Sur, Cagayan de Oro City, Davao Oriental, Davao de Oro, Davao del Norte, Davao del Sur, Davao City, Davao Occidental, Butuan City, Dinagat Islands and Surigao del Sur were under the MECQ; Laguna and Cavite were under the GCQ "with heightened restrictions"; the NCR, Bulacan and Rizal were under the GCQ "with some restrictions"; and Apayao was under the GCQ. From 01–31 July – Baguio City, Isabela, Santiago City, Nueva Vizcaya, Quirino, Quezon, Batangas, Guimaras, Aklan, Negros Occidental, Bacolod City, Antique, Capiz, Zamboanga Sibugay, Zamboanga City, Iligan City, South Cotabato, General Santos City, Sultan Kudarat, Sarangani, Cotabato, Agusan del Norte, Surigao del Norte, Agusan del Sur and Cotabato City were under the GCQ. The rest of the country was under the MGCC.

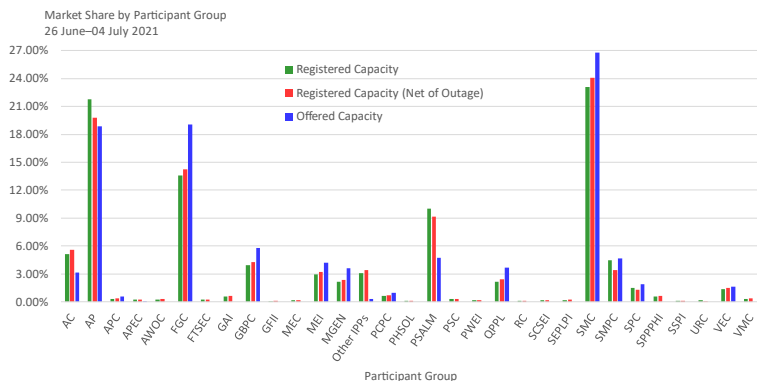
SUPPLY, DEMAND AND PRICE



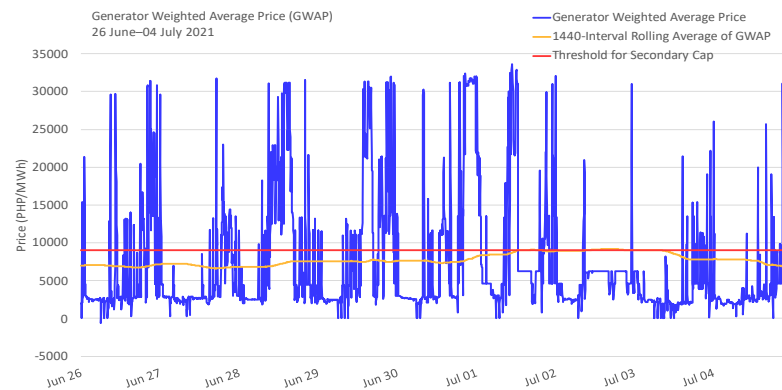
MARKET RSI VS PIVOTAL PLANTS



MARKET SHARE



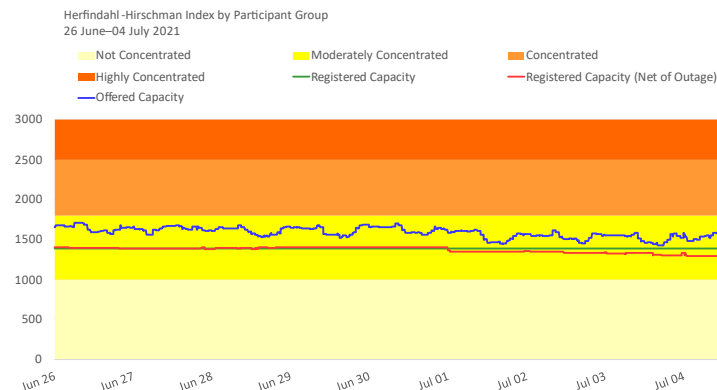
GENERATOR WEIGHTED AVERAGE PRICE



PSI



HERFINDAHL-HIRSCHMAN INDEX



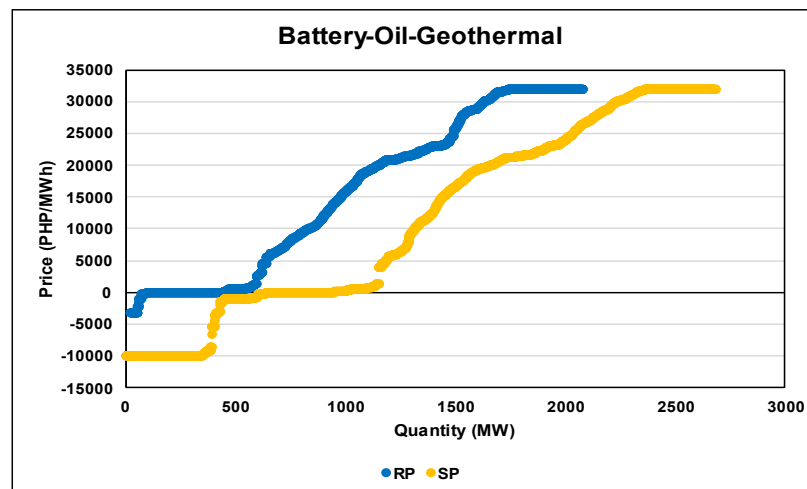
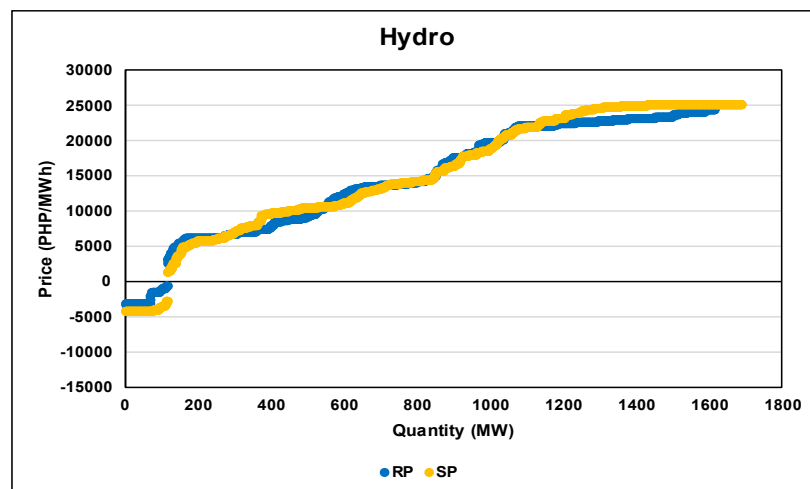
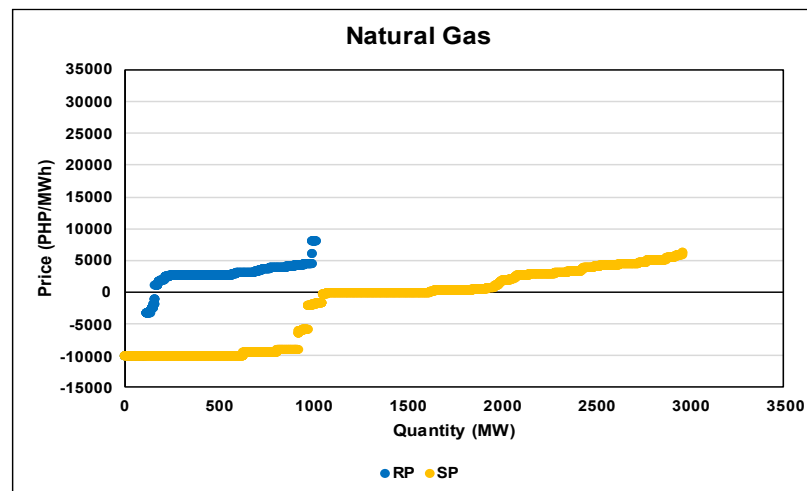
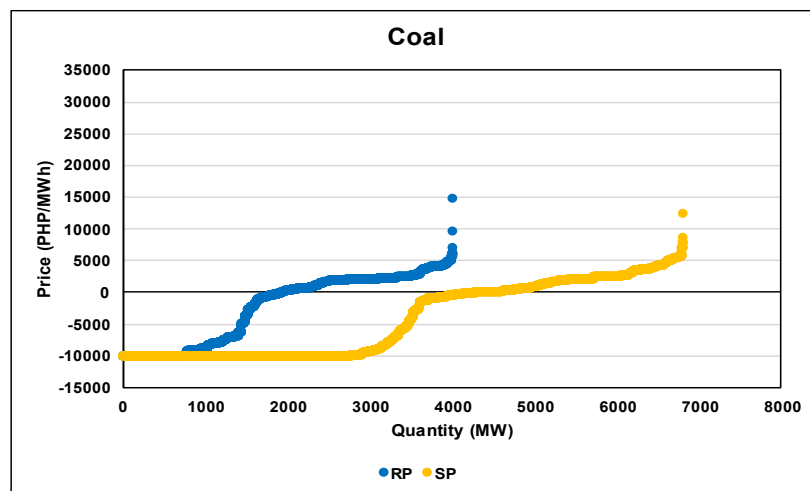
OFFER PATTERN ANALYSIS

Legend

RP: Reference Offer Price – the period of 21–25 June 2021 was used as a control for the comparison with the subject price

SP: Subject Offer Price – the period of 26 June–04 July 2021

Note: The covered period for the analysis of the Subject Price (SP) was adjusted to include the commencement of the Enhanced WESM Design and Operations (EWDO) on 26 June 2021. Moreover, in EWDO, Pmin quantities are already considered in the Offer Pattern Analysis which resulted in lower Average Subject Prices and higher offer quantities for previously nonzero Pmin plants.



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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