

**PEMC MARKET ASSESSMENT HIGHLIGHTS**

The average demand with reserve schedule, recorded at 11,574 MW during the week of 12–18 July 2021, was slightly higher than the previous week at 11,555 MW and higher than the same week last year at 11,396 MW. Various areas were under the ECQ, MECQ or the GCQ.<sup>1</sup>

The WESM registered capacity stood at 21,315 MW at the end of 18 July.

An average supply margin of 252 MW was observed during the week, which was lower by about 5.83% relative to the previous week and by about 90.12% in comparison with the same week last year. The supply margin of –30 MW observed on 12 July (interval 09:45, which was a peak interval) was the tightest during the week. The average supply margin was 178 MW at peak intervals and 311 MW at off-peak intervals.

The outage capacity averaged at 2,638 MW, higher than last week's 2,500 MW. About 46.51% of this involved coal plants while, in terms of category, about 49.96% were forced outages.

The average effective supply during the week was 11,826 MW, slightly higher than the previous week's 11,823 MW and lower than the 13,951 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 7,508/MWh from PHP 8,217/MWh last week. This is significantly higher than the PHP 1,850/MWh during the same week last year.

The secondary price cap was imposed at 191 intervals out of the 2,016 intervals of the week (about 9.47% of the time).

The top 5 participant groups accounted for about 77.39% 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 –

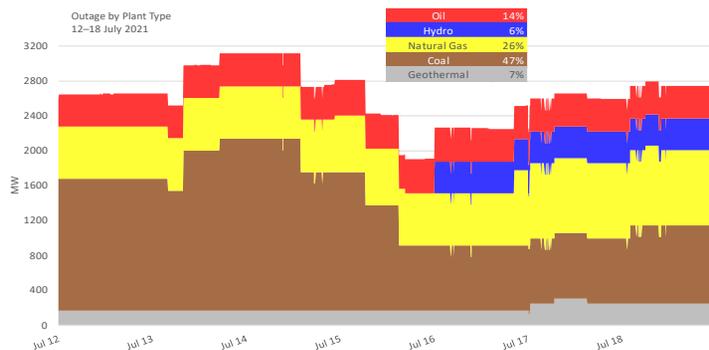
1. Masinloc Coal-Fired Thermal Power Plant (100.00% of the time)
2. Sta. Rita Natural Gas Power Plant (100.00% of the time)
3. SMC Limay Coal-Fired Thermal Power Plant (about 99.80% of the time)
4. Sual Coal-Fired Thermal Power Plant (about 99.70% of the time)
5. Ilijan Natural Gas Power Plant (about 94.84% of the time)

The offer pattern analysis showed an increase in offer quantity for the coal plants. Moreover, the average offer price for the natural gas and oil plants increased.

**IEMOP MARKET SYSTEMS ADVISORY**

No IT-related issue was advised in IEMOP's market systems from 12–18 July 2021.

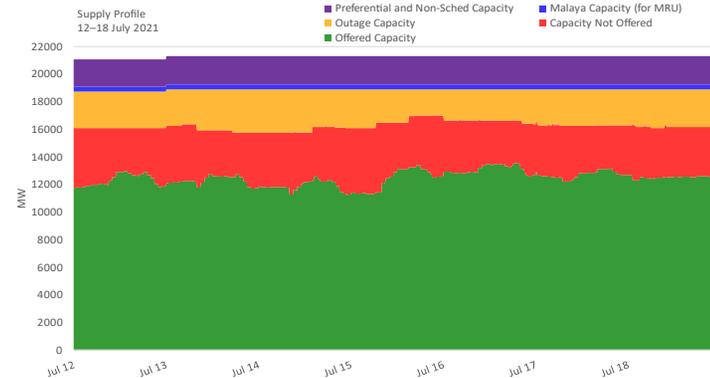
**OUTAGE CAPACITY BY PLANT TYPE**



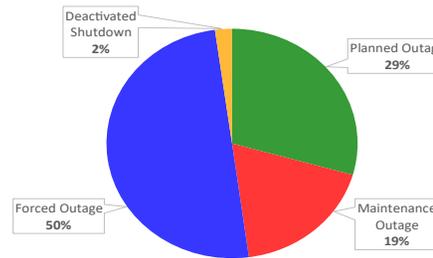
**SUMMARY (PRICE, SUPPLY, DEMAND AND RESERVE SCHEDULE)**

Particulars	12–18 July 2021	Previous Week (06–11 July 2021)	Same Week, Previous Year (06–12 July 2020)	Percent Change From		
				Previous Week	Same Week, Previous Year	
GWAP (PHP/MWh)	max	32,742.82	32,547.73	2,622.61	0.60%	1,148.48%
	min.	0.00	-604.64	0.00	100.00%	-
	w. ave.	7,508.11	8,216.80	1,850.34	-8.62%	305.77%
Effective Supply (MW)	max	13,664.49	13,944.19	15,257.08	-2.01%	-10.44%
	min.	9,715.57	9,466.24	12,444.91	2.63%	-21.93%
	ave.	11,826.31	11,822.83	13,950.94	0.03%	-15.23%
System Demand (MW)	max	12,795.37	12,871.19	12,442.68	-0.59%	2.83%
	min.	8,269.30	8,105.08	8,036.82	2.03%	2.89%
	ave.	10,639.26	10,541.35	10,308.78	0.93%	3.21%
Demand + Reserve Schedule (MW)	max	13,658.88	13,899.31	13,748.60	-1.73%	-0.65%
	min.	9,231.20	9,034.08	8,988.82	2.18%	2.70%
	ave.	11,573.91	11,554.80	11,395.65	0.17%	1.56%
Supply Margin (MW)	max	708.04	855.77	4,062.74	-17.26%	-82.57%
	min.	-29.90	8.96	1,263.58	-433.82%	-102.37%
	ave.	252.40	268.03	2,555.29	-5.83%	-90.12%

**SUPPLY PROFILE**



**OUTAGE CAPACITY BY OUTAGE CATEGORY**



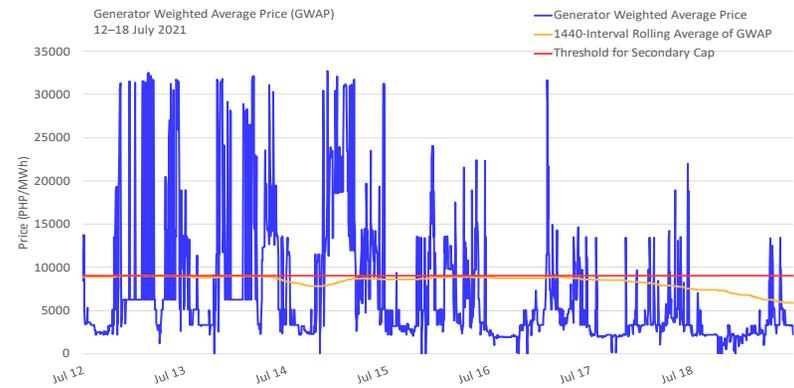
<sup>1</sup> From 01–15 July – Cagayan, Bataan, Lucena City, Puerto Princesa City, Naga City, Iloilo, Iloilo City, Negros Oriental, Zamboanga del Norte, Zamboanga del Sur, Cagayan de Oro City, Butuan City, Dinagat Islands, Surigao del Sur, Davao Oriental, Davao de Oro, Davao del Norte, Davao del Sur, Davao City and Davao Occidental 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 MGCCQ.

From 16–22 July – Aklan, Capiz and Bacolod City were under the GCQ "with heightened restrictions". From 16–31 July – Iloilo, Iloilo City, Cagayan de Oro City, Gingoog City were under the ECQ; Bataan, Butuan City, Davao de Oro, Davao del Norte, Davao del Sur, 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 the NCR, 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 MGCCQ.

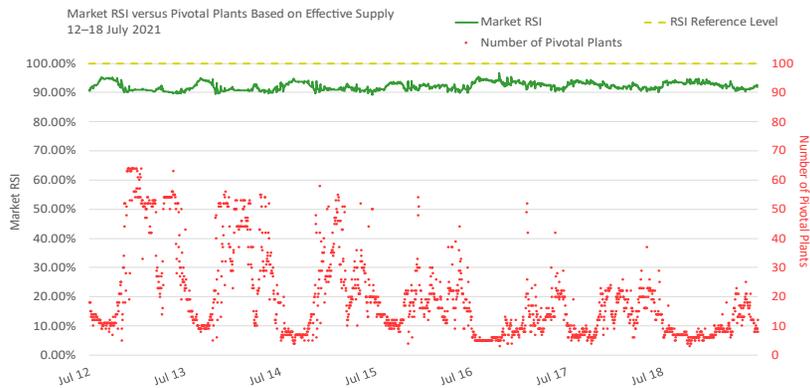
**SUPPLY, DEMAND AND PRICE**



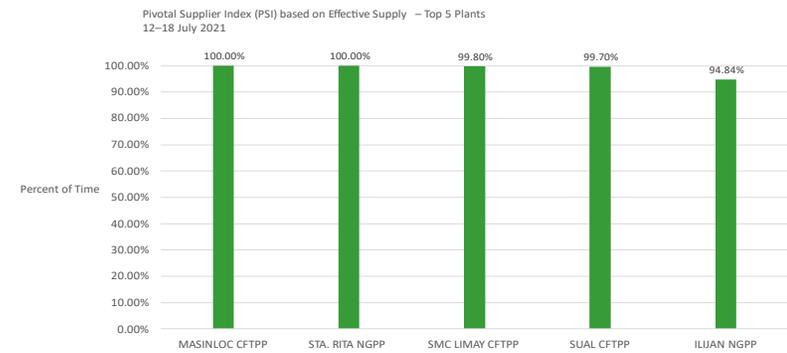
**GENERATOR WEIGHTED AVERAGE PRICE**



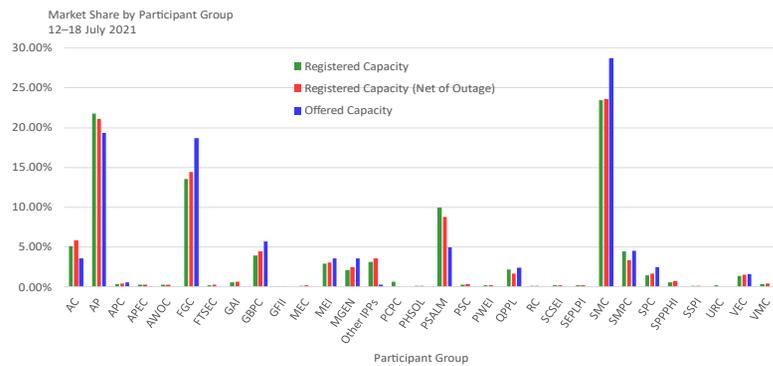
**MARKET RSI VS PIVOTAL PLANTS**



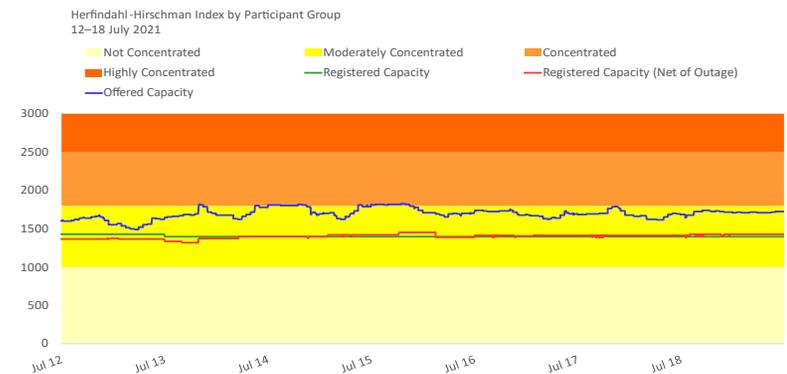
**PSI**



**MARKET SHARE**



**HERFINDAHL-HIRSCHMAN INDEX**



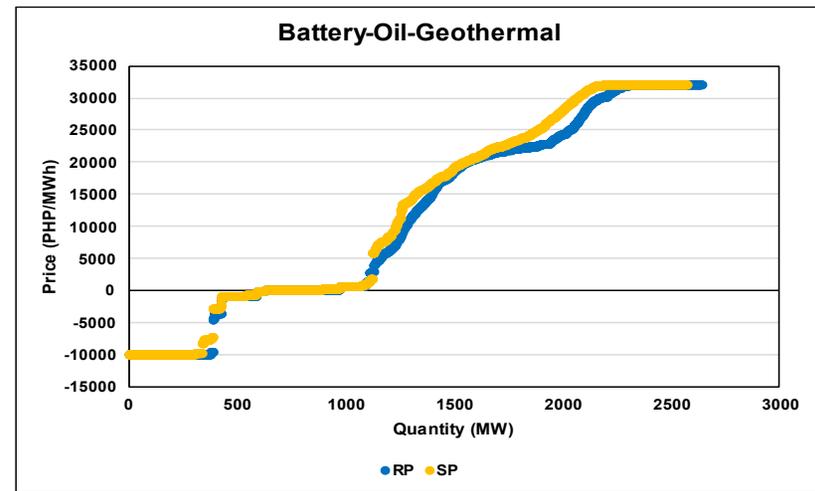
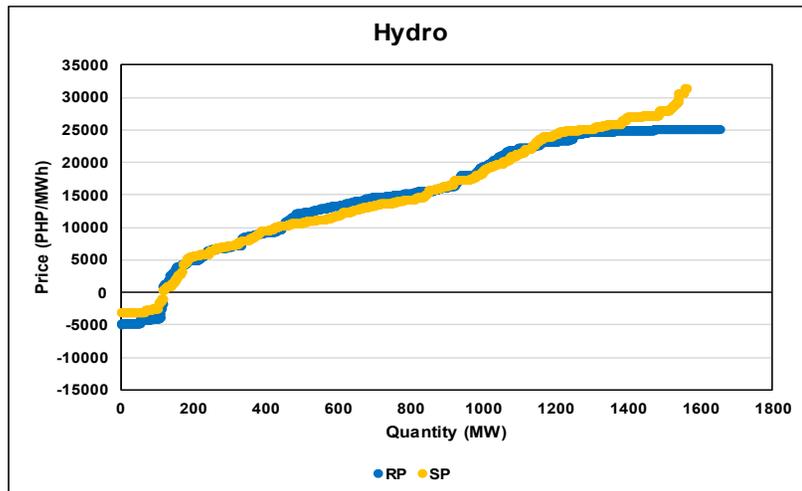
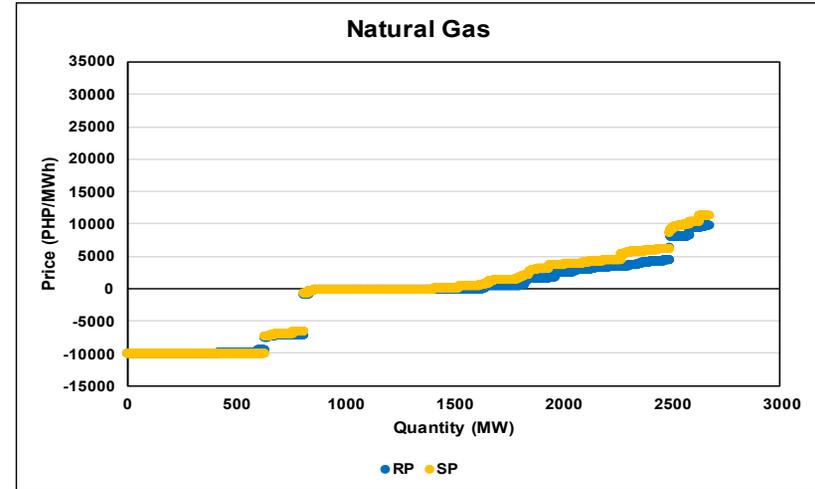
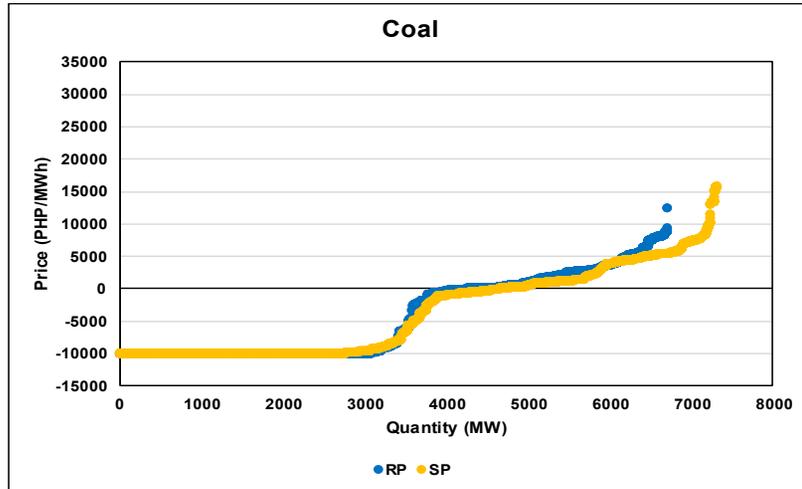
**OFFER PATTERN ANALYSIS**

**Legend**

RP: Reference Offer Price – the week of 05–11 July 2021 was used as a control for the comparison with the subject price

SP: Subject Offer Price – the week of 12–18 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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