



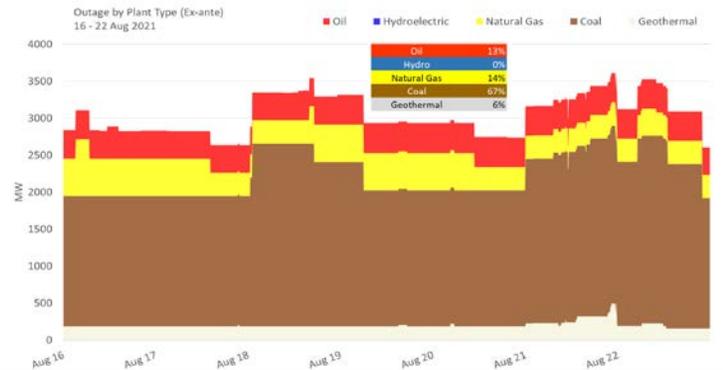
**PEMCO MARKET ASSESSMENT HIGHLIGHTS**

- The average demand and the reserve schedule, recorded at 11,056 MW during the week of 16 - 22 Aug 2021, was lower than the previous week at 11,267 MW ,higher than the same week last year at 10,525 MW.Various areas were under the ECQ, MECQ or the GCQ.<sup>1</sup>
- The WESM registered capacity stood at 21,366 MW at the end of the week.
- An average supply margin of 382 MW was observed during the week, which is lower by about 10% relative to the previous week and lower by about 86% in comparison with the same week last year.The supply margin of -269.11 MW observed on 19 August 2021 08:55 was the tightest during the week . The average supply margin was 273.51 MW at peak intervals and 416.49 MW at off-peak intervals.
- The outage capacity averaged at 3,042 MW, higher than last week's 2,361 MW. About 67% of the 3,042 MW involved Coal plants, while in terms of category, about 60% were Forced Outages.
- The average effective supply during the week was 11,438 MW, lower than the 11,690 MW of the previous week and lower than the 13,267 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 6,386/MWh from PHP 3,604/MWh last week. This is higher than the PHP 1,863/MWh during the same week last year.An administered prices were used during the Market Operator-initiated market intervention for Luzon and Visayas on 21 August (intervals 12:50 & 12:55) and System Operator-initiated market intervention for Visayas on 21 August ( intervals 00:00 to 06:30) .
- The secondary price cap was imposed at 135 intervals out of the 2016 intervals of the week (about 7% of the time).
- The top 5 participant groups accounted for about 80% of the offered capacity. The Herfindahl-Hirschman Index (HHI) by participant group indicated a moderately concentrated market based on the registered and offered capacities.
- Based on the effective supply, the top 5 pivotal plants during the week were --
  1. STA RITA NGPP (about 99.16% of the time)
  2. ILJAN NGPP (about 95.19% of the time)
  3. SUJAL CFTPP (about 92.61% of the time)
  4. MASINLOC CFTPP (about 78.32% of the time)
  5. SMC LIMAY CFTPP (about 62.1% of the time)
- The offer pattern analysis showed significant decrease in coal plants' offered capacity. Moreover, average offer price demonstrated increase in coal, natural gas, and hydro plants, in contrast to oil plants' decrease.

**IEMOP MARKET SYSTEMS ADVISORY**

- Market Operator declared market intervention for 21 August (intervals 12:50 & 12:55) for Luzon and Visayas due to non-generation of RTD schedules.

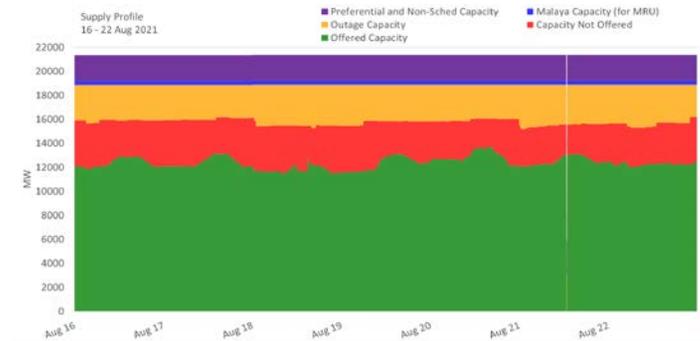
**OUTAGE CAPACITY BY PLANT TYPE**



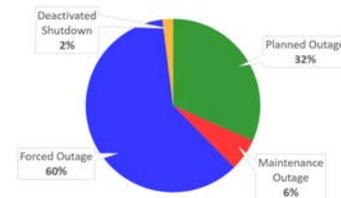
**SUMMARY (PRICE, SUPPLY, DEMAND AND RESERVE SCHEDULE)**

Particulars	16 - 22 Aug 2021	Previous Week (09 - 15 Aug 2021 )	Same Week, Previous Year (10 - 16 Aug 2020)	Percent Change From		
				Previous Week	Same Week, Prev Year	
GWAP (PHP/MWh)	max	32,370.61	31,891.72	2,628.99	1.50%	1,131.29%
	min.	-1,575.88	-9,884.67	0.00	84.06%	-
	w. ave.	6,385.82	3,604.34	1,862.78	77.17%	242.81%
Effective Supply (MW)	max	13,242.88	13,759.15	14,559.33	-3.75%	-9.04%
	min.	9,650.38	10,024.60	12,301.61	-3.73%	-21.55%
	ave.	11,437.53	11,690.35	13,266.79	-2.16%	-13.79%
System Demand (MW)	max	12,215.52	12,230.33	11,371.43	-0.12%	7.42%
	min.	8,088.85	8,403.14	7,341.55	-3.74%	10.18%
	ave.	10,226.58	10,168.68	9,447.43	0.57%	8.25%
Demand + Reserve Schedule (MW)	max	13,112.38	13,464.15	12,814.03	-2.61%	2.33%
	min.	8,813.95	9,381.62	8,295.95	-6.05%	6.24%
	ave.	11,055.98	11,266.84	10,525.41	-1.87%	5.04%
Supply Margin (MW)	max	1,020.50	1,087.40	4,187.52	-6.15%	-75.63%
	min.	-269.11	0.00	1,587.67	-	-116.95%
	ave.	381.55	423.51	2,741.38	-9.91%	-86.08%

**SUPPLY PROFILE**



**OUTAGE CAPACITY BY OUTAGE CATEGORY**



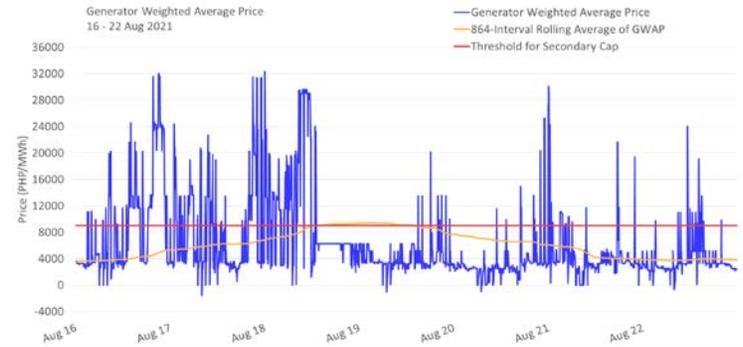
<sup>1</sup> Laguna, Iloilo City, and Cagayan de Oro City will ease from a hard lockdown to a modified enhanced community quarantine from Aug. 16 to 31. The following areas also under MECQ from Aug. 16 to 31: Apayao; Ilocos Norte; Bulacan; Cavite; Lucena City, and Rizal in Region 4-A for Luzon; and Aklan, and Iloilo Province in Region 6, and Lapu-Lapu City, Mandaue City, and Cebu City in Region 7 for the Visayas. Meanwhile, placed under GCQ with heightened restrictions from August 16 to August 31 are Ilocos Sur; Cagayan; Quezon and Batangas in Region 4-A and Naga City for Luzon; Antique, Bacolod City and Capiz in Region 6; and Negros Oriental and Cebu for the Visayas; Zamboanga del Sur; Misamis Oriental; Davao City, Davao del Norte, Davao Occidental and Davao de Oro in Region 11 and Butuan City for Mindanao. Tarlac will shift from MGCC to GCQ from Aug. 13 to 31. Also placed under GCQ from August 16 to August 31, 2021 are Baguio City in the Cordillera Administrative Region; Santiago City, Quirino, Isabela and Nueva Vizcaya in Region 2; Batangas and Quezon in Region 4-A and Puerto Princesa for Luzon; Guimaras and Negros Occidental in Region 6; Zamboanga Sibugay, Zamboanga City and Zamboanga del Norte in Region 9; Davao Oriental and Davao del Sur in Region 11; General Santos City, Sultan Kudarat, Sarangani, North Cotabato and South Cotabato in Region 12; Agusan del Norte, Agusan del Sur, Surigao del Sur, Surigao del Sur and Dinagat Islands in CARAGA and Cotabato City in the Bangsamoro Autonomous Region in Muslim Mindanao. Metro Manila will stay under ECQ until Aug. 20, while Bataan will remain under the strictest lockdown until Aug. 22. Other areas not included in the list are under the MGCC classification from August 16 to 31.



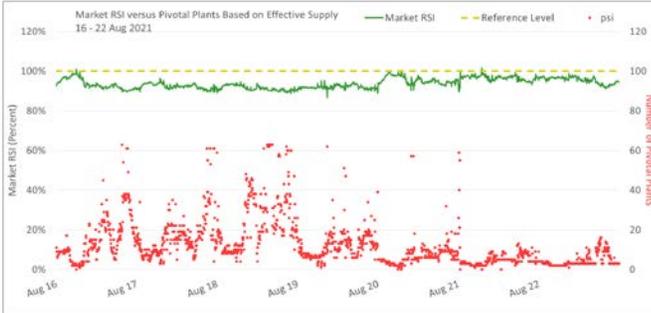
### SUPPLY, DEMAND AND PRICE



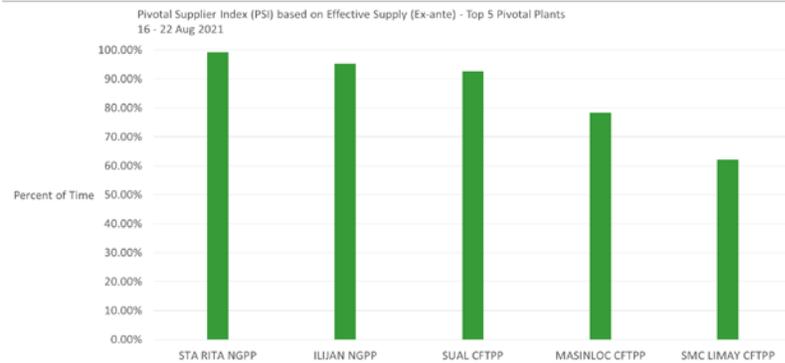
### GENERATOR WEIGHTED AVERAGE PRICE



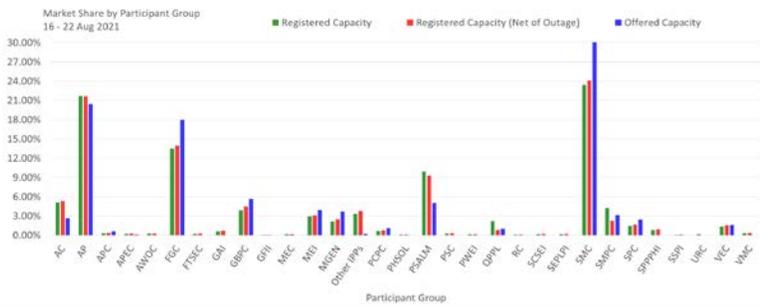
### MARKET RSI VS PIVOTAL PLANTS



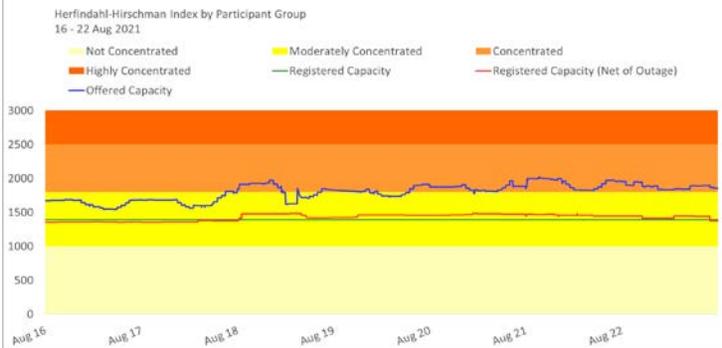
### PSI



### MARKET SHARE



### HERFINDAHL-HIRSCHMAN INDEX



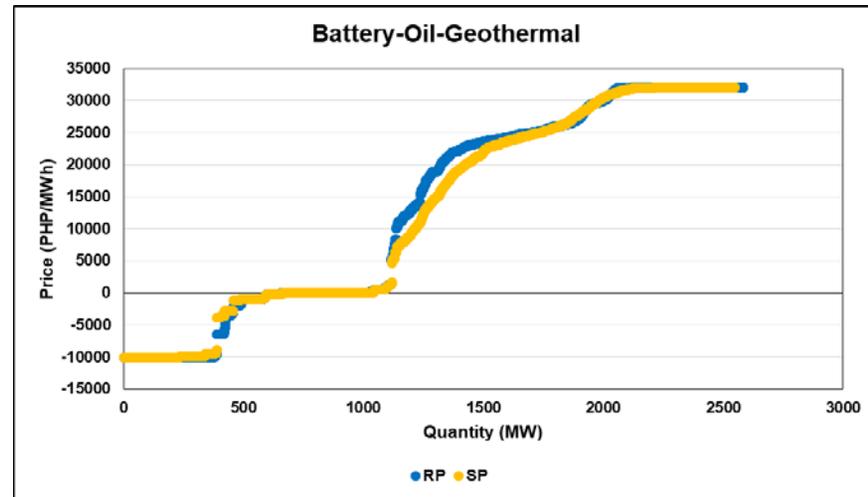
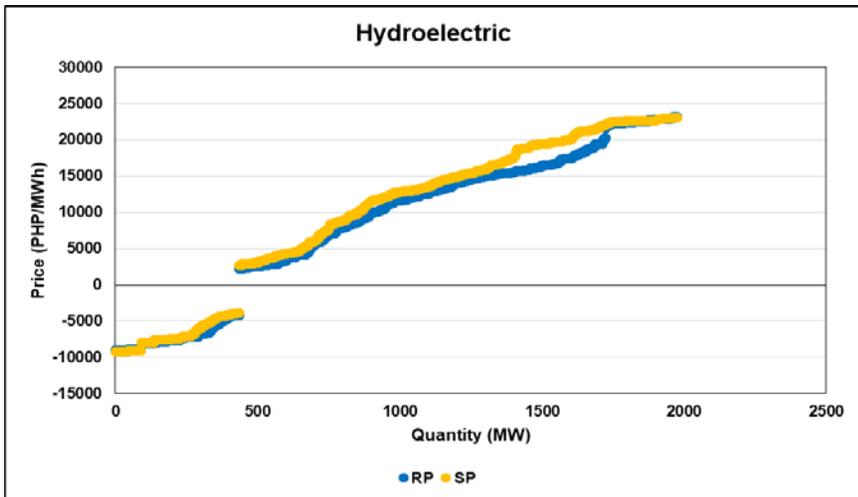
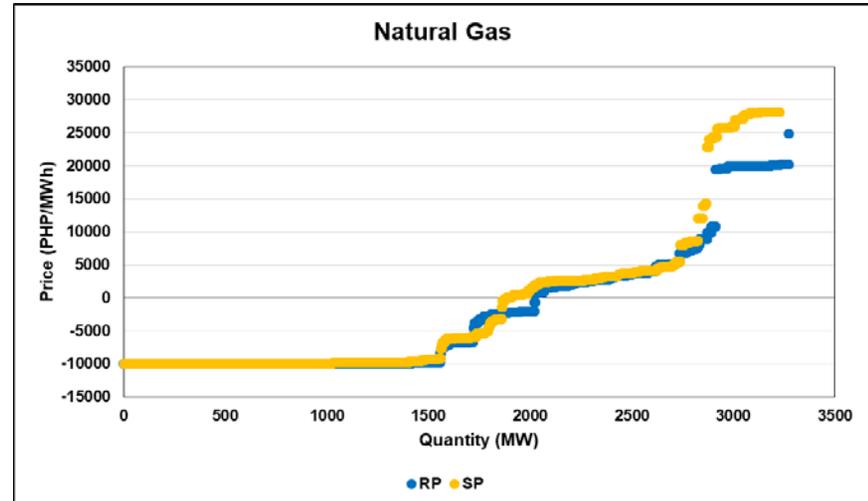
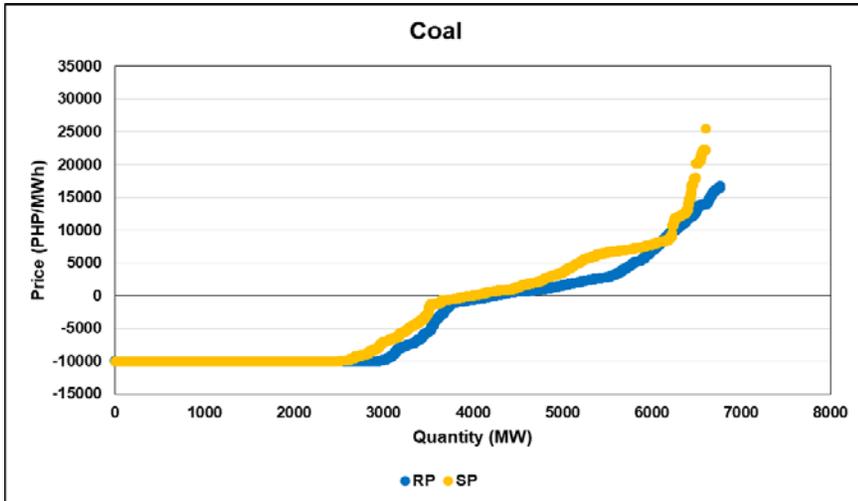
**OFFER PATTERN ANALYSIS**

**Legend**

RP: Reference Offer Price – the week of 09-15 Aug 2021 was used as a control for the comparison with the subject price

SP: Subject Offer Price – the week of 16-22 Aug 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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