

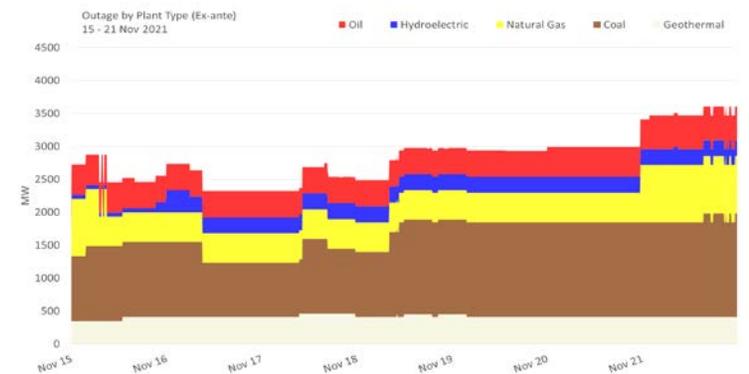
PEMC MARKET ASSESSMENT HIGHLIGHTS

- The average demand and the reserve schedule, recorded at 11,592 MW during the week of 15 - 21 Nov 2021, was lower than the previous week at 11,672 MW, but higher than the same week last year at 10,244 MW. Various areas were under the ECQ, MECQ or the GCQ.¹
- The WESM registered capacity stood at 21,405 MW at the end of the week.
- An average supply margin of 898 MW was observed during the week, higher by about 4% relative to the previous and lower by about 57% in comparison with the same week last year. The supply margin of 362.29 MW observed on 16 November 2021 17:55 was the tightest. The average supply margin during peak intervals reached the level of 811.40 MW, climbing to 966.64 MW at off-peak.
- The outage capacity averaged at 2,824 MW, higher than last week's 2,415 MW. About 44% of the 2,824 MW involved Coal plants, while in terms of category, about 53% were Forced Outages.
- The average effective supply during the week was 12,490 MW, lower than both the 12,539 MW of the previous and the 13,137 MW during the same week last year. Ramping limitations in generators' offers continued to persist and increased by 13% in MW adversely affecting the effective supply.
- Average GWAP went down at PHP 4,605/MWh from PHP 5,377/MWh last week. This is still higher than the PHP 1,453/MWh during the same week last year.
- No secondary price cap was imposed for this week
- The top 5 participant groups accounted for about 75% 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 –
 - MASINLOC CFTPP (about 38.14% of the time)
 - PAGBILAO CFTPP (about 12.85% of the time)
 - STA RITA NGPP (about 12.05% of the time)
 - ILJAN NGPP (about 2.48% of the time)
 - SMC LIMAY CFTPP (about 1.88% of the time)
- The offer pattern analysis showed decrease in coal and hydro plants' offered capacity in contrast with the offered capacity of natural gas plants. Moreover, average offer price demonstrated increase in level for coal and hydro plants.

IEMOP MARKET SYSTEMS ADVISORY

- No IT-related issue was advised in IEMOP's market systems from 15 - 21 Nov 2021.

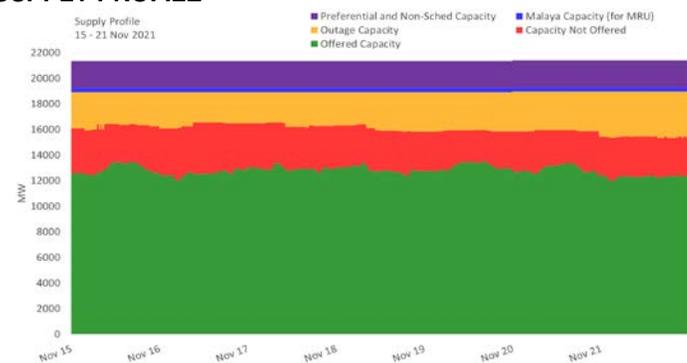
OUTAGE CAPACITY BY PLANT TYPE



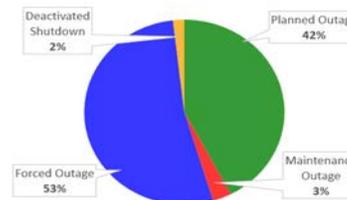
SUMMARY (PRICE, SUPPLY, DEMAND AND RESERVE SCHEDULE)

Particulars	15 - 21 Nov 2021	Previous Wk (08 - 14 Nov 2021)	Same Wk, Prev Year (09 - 15 Nov 2020)	Percent Change From	
				Previous Week	Same Wk, Prev Year
GWAP (PHP/MWh)	max	21,299.47	31,676.77	-32.76%	806.09%
	min.	-1.01	-1,050.63	99.90%	99.96%
	w. ave.	4,605.39	5,377.00	-14.35%	216.86%
Effective Supply (MW)	max	14,294.00	14,199.66	0.66%	-1.50%
	min.	10,302.09	10,580.76	-2.63%	-13.95%
	ave.	12,490.12	12,538.88	-0.39%	-4.93%
System Demand (MW)	max	12,600.43	12,605.55	-0.04%	12.90%
	min.	8,454.55	8,686.10	-2.67%	13.83%
	ave.	10,672.61	10,750.40	-0.72%	15.51%
Demand + Reserve Schedule (MW)	max	13,491.35	13,546.71	-0.41%	10.41%
	min.	9,285.46	9,602.10	-3.30%	11.51%
	ave.	11,591.86	11,671.58	-0.68%	13.15%
Supply Margin (MW)	max	1,345.46	1,370.60	-1.83%	-68.40%
	min.	362.29	336.24	0.00%	7.75%
	ave.	898.26	867.30	2,083.53	3.57%

SUPPLY PROFILE

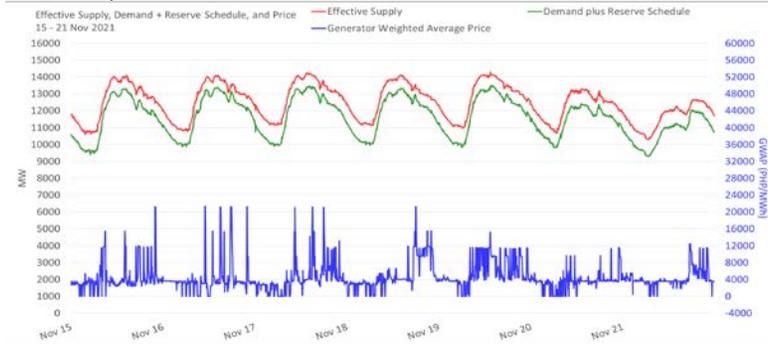


OUTAGE CAPACITY BY OUTAGE CATEGORY

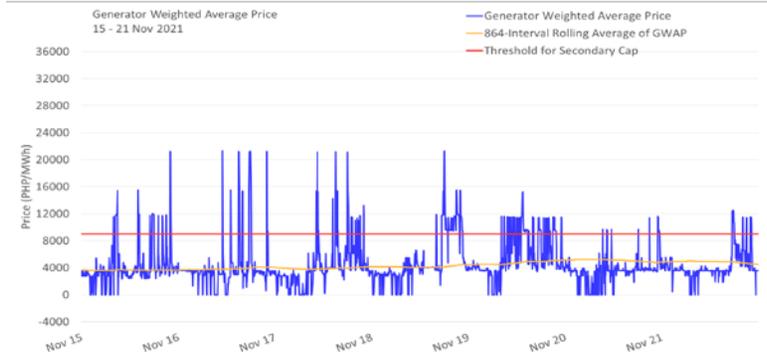


¹ The risk-level classifications of non-ALS (Alert Level System) provinces, highly urbanized cities, and independent component cities are as follows: Mountain Province, Catanduanes, and Zamboanga City shall be under modified enhanced community quarantine (MECQ) from Nov. 1 until Nov. 15, 2021. Abra, Cagayan, Isabela, City of Santiago, Nueva Vizcaya, and Quirino shall be placed under general community quarantine (GCQ) with heightened restrictions from Nov. 1 until Nov. 30, 2021. Placed under GCQ—the lowest classification in terms of risk—for the whole month of November are Ifugao, Benguet, Apayao, Kalinga, Ilocos Sur, Dagupan City, Batanes, Occidental Mindoro, Oriental Mindoro, Puerto Princesa, Palawan, Albay, Naga City, Camarines Norte, and Tacloban City. Also placed under GCQ for the entirety of November are Zamboanga Sibugay, Zamboanga del Norte, Zamboanga del Sur, General Santos City, Sarangani, North Cotabato, South Cotabato, Agusan del Norte, Agusan del Sur, Surigao del Norte, Surigao del Sur, Butuan City, Dinagat Islands, Cotabato City, and Lanao del Sur. All other areas not mentioned shall be placed under modified GCQ (MGCQ) for the whole month of November. The ALS, which was initially piloted solely in the National Capital Region (NCR), has been expanded to more areas in the country as per the same IATF resolution

SUPPLY, DEMAND AND PRICE



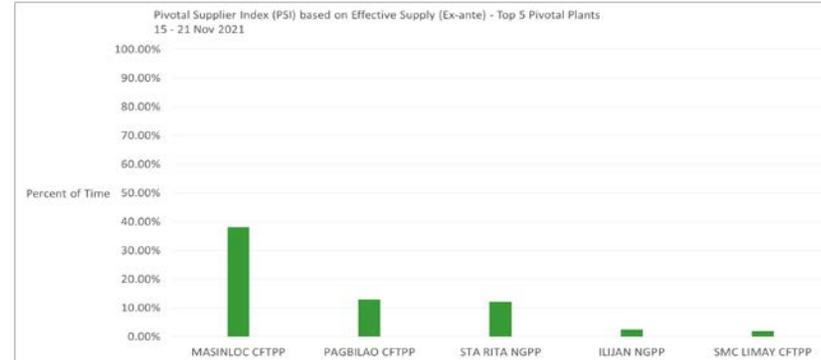
GENERATOR WEIGHTED AVERAGE PRICE



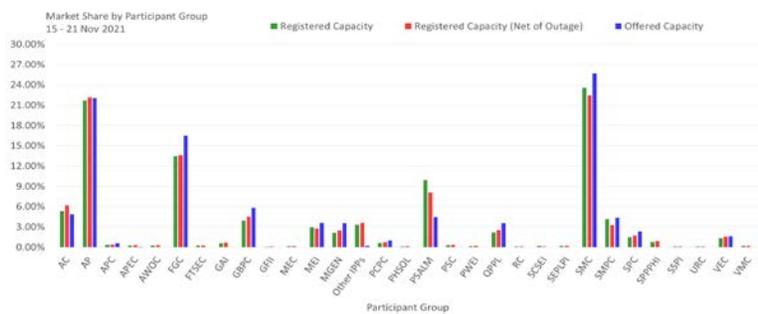
MARKET RSI VS PIVOTAL PLANTS



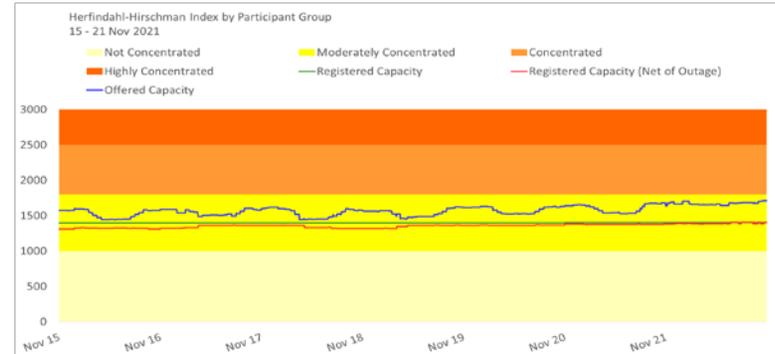
PSI



MARKET SHARE



HERFINDAHL-HIRSCHMAN INDEX

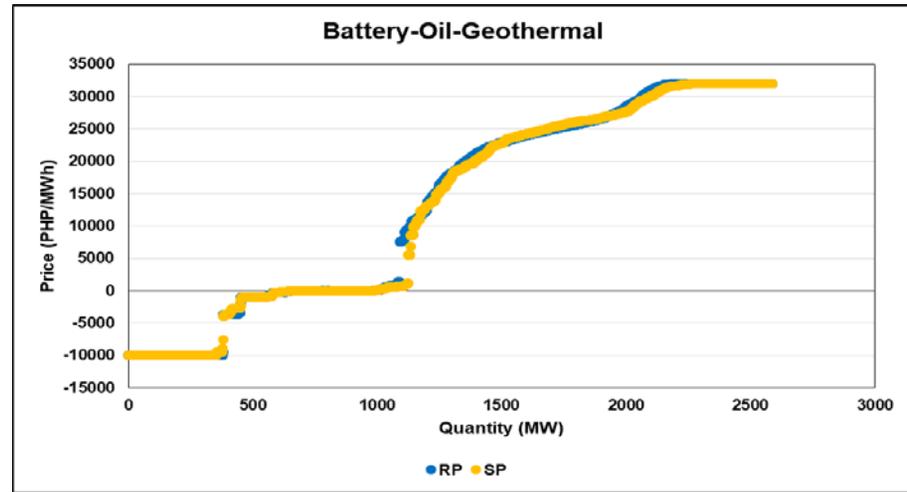
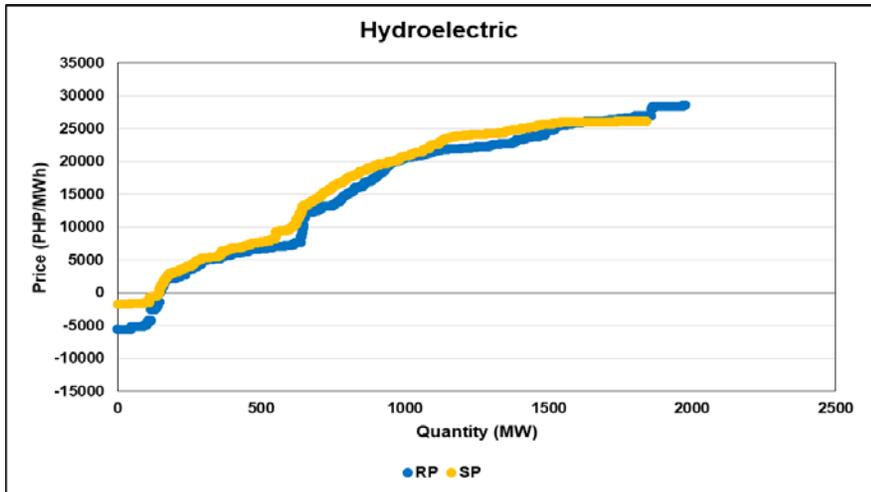
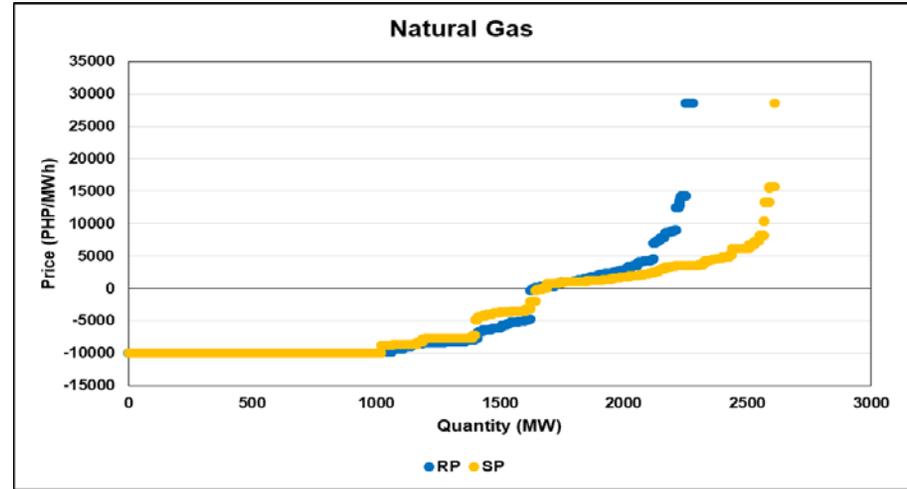
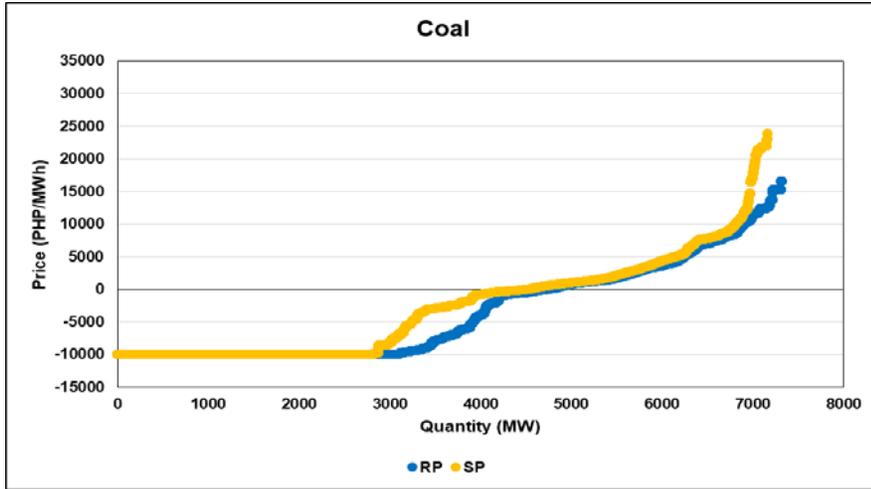


OFFER PATTERN ANALYSIS

Legend

RP: Reference Offer Price – the week of 08-14 Nov 2021 was used as a control for the comparison with the subject price

SP: Subject Offer Price – the week of 15-21 Nov 2021



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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