

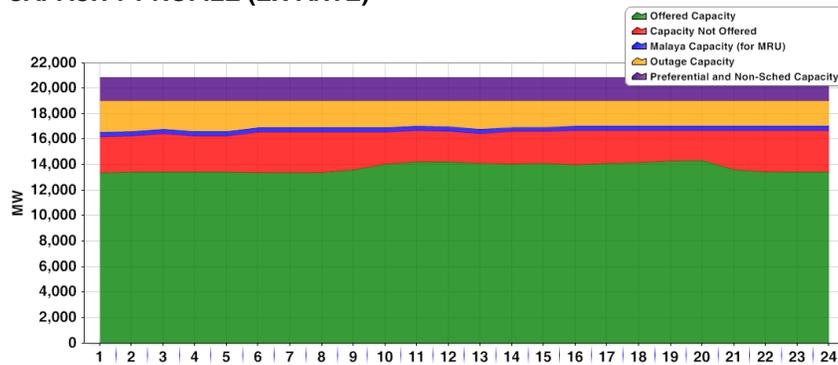
**PEMC Market Assessment Highlights**

- The average demand, including the average reserve schedule, was recorded at 10,795 MW on 23 November 2020. The General Community Quarantine (GCQ) and the Modified General Community Quarantine (MGCQ) are in place to contain the spread of the coronavirus disease. Starting 01 November – the National Capital Region, Batangas, Iloilo City, Bacolod City, Tacloban City, Iligan City and Lanao del Sur are under the GCQ while the rest of the country is under the MGCQ.
- The total WESM registered capacity stood at 20,859 MW.
- The outage capacity averaged 2,123 MW. About 42% of which involved coal plants while about 20% involved natural gas plants. About 87% of the total outage capacity were from forced outages.
- The average effective supply was 13,801 MW.
- A supply margin averaging 3,006 MW was observed.
- The average GWAP for the day was at PHP 1,407/MWh, which was higher than the previous day's PHP 1,398/MWh and lower than the previous Monday's PHP 1,576/MWh. The GWAP at hour 24 is subject to a market rerun due to pricing errors.
- The secondary price cap was not imposed during the day.
- The top 5 major participant groups accounted for 78% of the average offered capacity. The Herfindahl-Hirschman Index (HHI) by major participant grouping indicated a moderately concentrated market based on the registered capacity, registered capacity (net of outage) and the offered capacity.
- No plant figured as a pivotal supplier, consistent with the wide supply margin of the day.

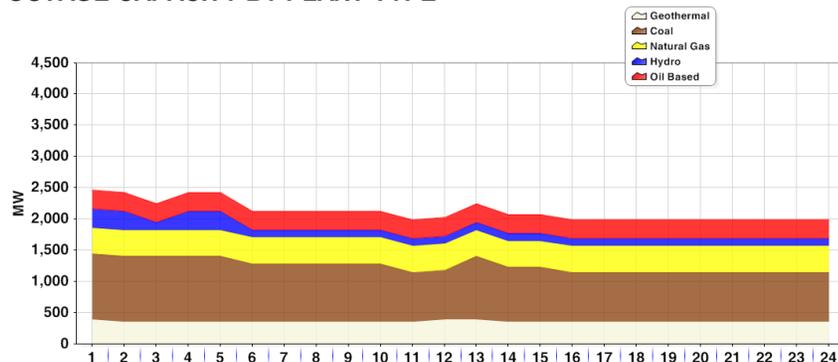
**IEMOP Market Systems Advisory**

- No IT-related issue was encountered in IEMOP's market systems on 23 November 2020.

**CAPACITY PROFILE (EX-ANTE)**



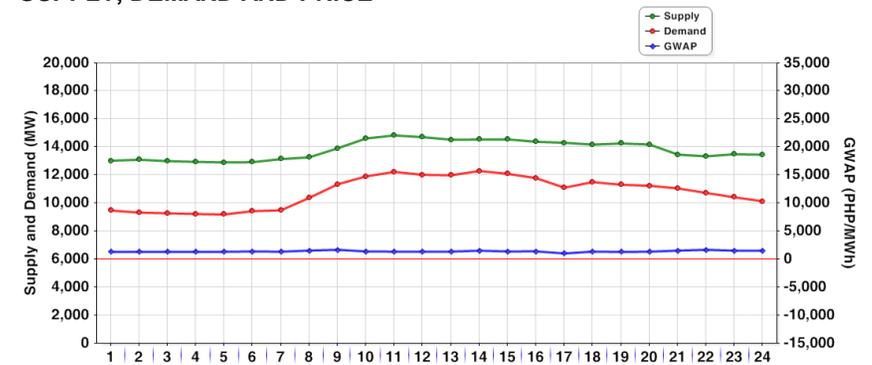
**OUTAGE CAPACITY BY PLANT TYPE**



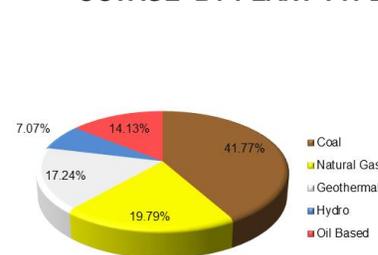
**Summary of Prices, Demand and Supply**

| Particulars                          |     | Today     | Prev Day  | SameDay Prev wk | Percent Change From |                    |
|--------------------------------------|-----|-----------|-----------|-----------------|---------------------|--------------------|
|                                      |     | 23-Nov    | 22-Nov    | 16-Nov          | prev day            | same day last week |
| GWAP (PHP/MWh)                       | max | 1,693.02  | 1,572.17  | 1,961.65        | 7.69%               | -13.69%            |
|                                      | min | 1,033.30  | 1,244.70  | 1,328.16        | -16.98%             | -22.20%            |
|                                      | ave | 1,406.80  | 1,398.32  | 1,575.80        | 0.61%               | -10.72%            |
| EFFECTIVE Supply (MW)                | max | 14,840.16 | 13,594.00 | 14,365.25       | 9.17%               | 3.31%              |
|                                      | min | 12,913.70 | 12,614.03 | 12,565.09       | 2.38%               | 2.77%              |
|                                      | ave | 13,801.21 | 13,157.92 | 13,432.97       | 4.89%               | 2.74%              |
| System Demand (MW)                   | max | 11,080.26 | 9,903.62  | 11,378.21       | 11.88%              | -2.62%             |
|                                      | min | 8,074.36  | 7,717.92  | 7,913.48        | 4.62%               | 2.03%              |
|                                      | ave | 9,642.28  | 8,912.16  | 9,804.41        | 8.19%               | -1.65%             |
| DEMAND (ENERGY + RESERVE SCHED) (MW) | max | 12,301.06 | 10,991.12 | 12,579.81       | 11.92%              | -2.22%             |
|                                      | min | 9,197.06  | 8,813.62  | 8,852.88        | 4.35%               | 3.89%              |
|                                      | ave | 10,795.20 | 9,982.31  | 10,890.89       | 8.14%               | -0.88%             |
| SUPPLY MARGIN (MW)                   | max | 3,773.14  | 3,839.15  | 3,757.41        | -1.72%              | 0.42%              |
|                                      | min | 2,242.90  | 2,321.49  | 1,591.83        | -3.39%              | 40.90%             |
|                                      | ave | 3,006.00  | 3,175.61  | 2,542.08        | -5.34%              | 18.25%             |

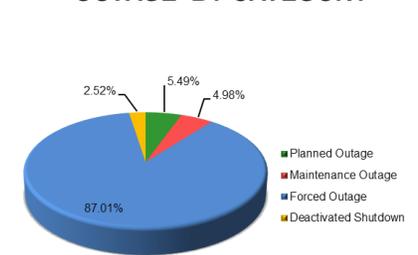
**SUPPLY, DEMAND AND PRICE**



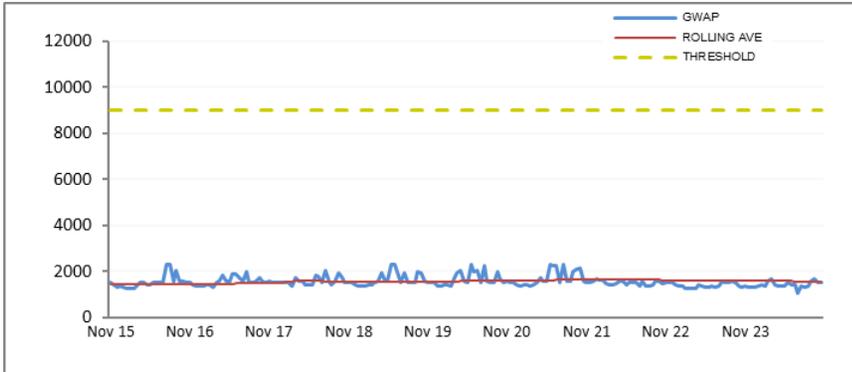
**OUTAGE BY PLANT TYPE**



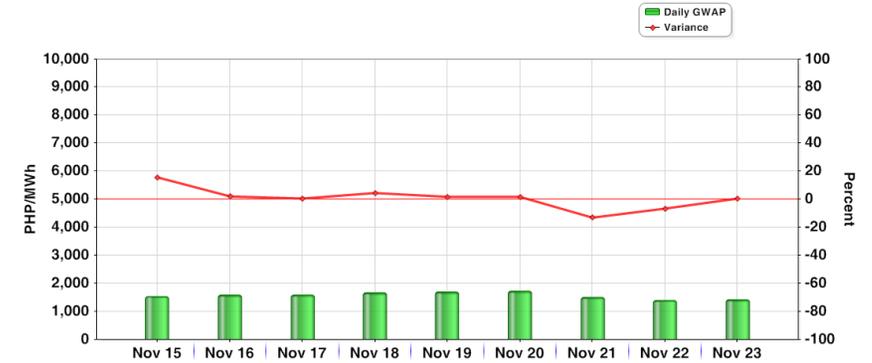
**OUTAGE BY CATEGORY**



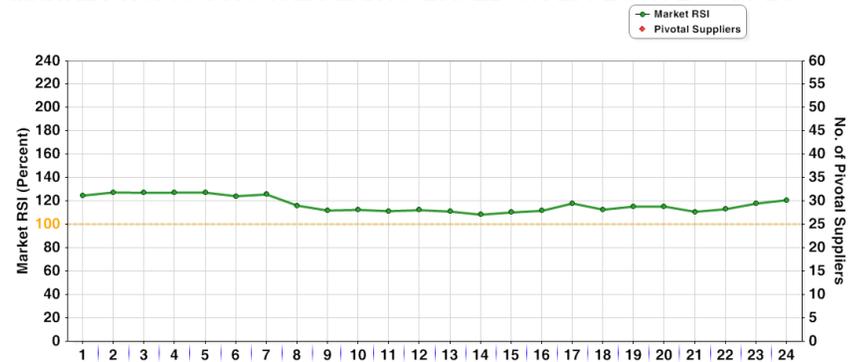
**SECONDARY CAP**



**DAILY AVERAGE PRICES AND VARIANCE**



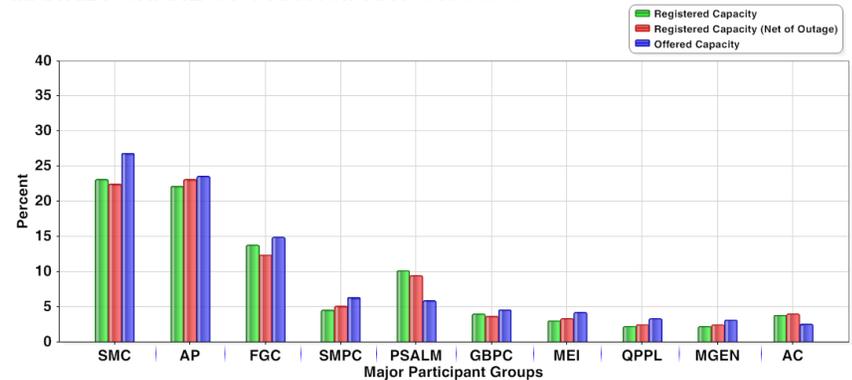
**MARKET RSI VS PIVOTAL PLANTS BASED ON EFFECTIVE SUPPLY**



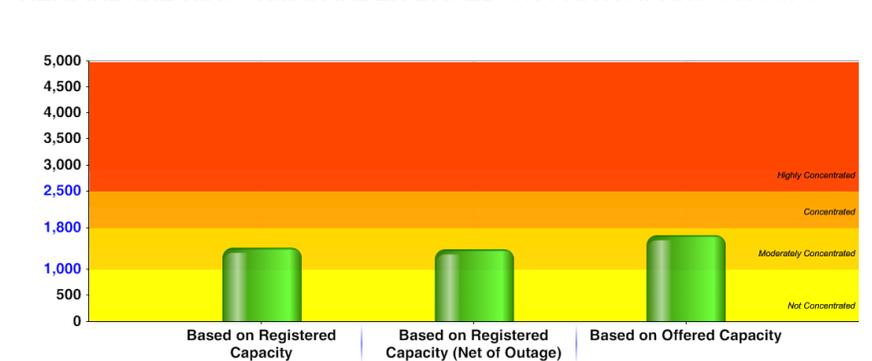
**PIVOTAL PLANTS BASED ON EFFECTIVE SUPPLY (EX-ANTE)**



**MARKET SHARE OF PARTICIPANT GROUPS**



**HERFINDAHL-HIRSCHMAN INDEX BASED ON PARTICIPANT GROUPS**





## 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.

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**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 supply 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.