



Market Surveillance Committee Monthly Market Assessment Report

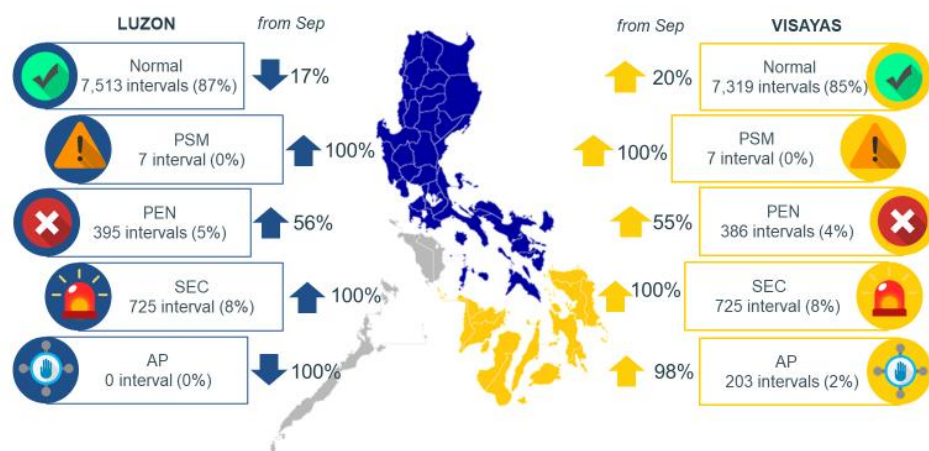
26 September to 25 October 2021

AUGUST 2022

This Report is prepared by the
Philippine Electricity Market Corporation –
Market Assessment Group for the
Market Surveillance Committee

ASSESSMENT OF THE MARKET

SUMMARY OF PRICING CONDITIONS



NOTABLE HIGHLIGHTS

- SPEX Malampaya scheduled maintenance resulting to increased outage capacity
 - Maintenance work was scheduled for 2-22 October 2021 and was further extended due to the effects of typhoon Maring, for a total of 24 days
- System Demand was observed to have increased by an average of 3.3 percent
 - Government eased the quarantine restrictions in more areas of the country allowing more economic activities
- The effective supply satisfied the increasing demand, but higher prices were observed due to high outage capacity from base load plants which usually have lower price offers.
- Yellow and Blue alert status were declared on Luzon and Visayas grid
 - Luzon grid was placed under yellow alert grid status due to forced outages and derated capacities
 - Blue alert level was implemented in Visayas grid brought about by the presence of typhoon Maring
- Market prices doubled from previous month
 - Notable increase of 94.7% attributed to availability of generators to supply for the demand
 - Secondary price cap was imposed to 725 intervals both in Luzon and Visayas.

- Price Substitution Methodology (PSM)** was imposed to 7 intervals due to **network constraints**. The latest change in the Price Determination Methodology (PDM) now excludes radial lines in the PSM criteria upon commercial operations of the Enhanced WESM Design and Operations (EWDO).
- Intervals with **pricing error notices** were mainly a result of **inappropriate input data** which affected prices and schedules for 369 intervals of the system, 26 intervals solely in Luzon and 17 intervals solely in Visayas.
- The cumulative price threshold of PHP9,000/MWh was breached and resulted to the imposition of **secondary price cap** for 725 intervals resulting from high prices due to the high level of demand and outage capacity. The network constraint in Luzon and radial constraint in Visayas also impacted the imposition of secondary price cap.
- The System Operator (SO) initiated **market intervention (MI)** in the Visayas region due to the **total blackout in Bohol** and the **multiple line tripping** in Negros and Panay.

The **grid alert level** is a barometer used to quantify the grid status which corresponds to advisories issued by the NGCP. A **Yellow alert** is issued when the contingency reserve is less than the capacity of the largest synchronized generating unit or power import from a single interconnection, whichever is higher. **Red alert** is issued when the contingency reserve is zero or generation deficiency exists or if there is critical loading or imminent overloading of transmission lines or equipment, and **Blue alert** is issued when a tropical disturbance is expected within 24 hours.

MARKET OUTCOME

SUPPLY MARGIN



393
MW
(511 MW in September)

EFFECTIVE SUPPLY

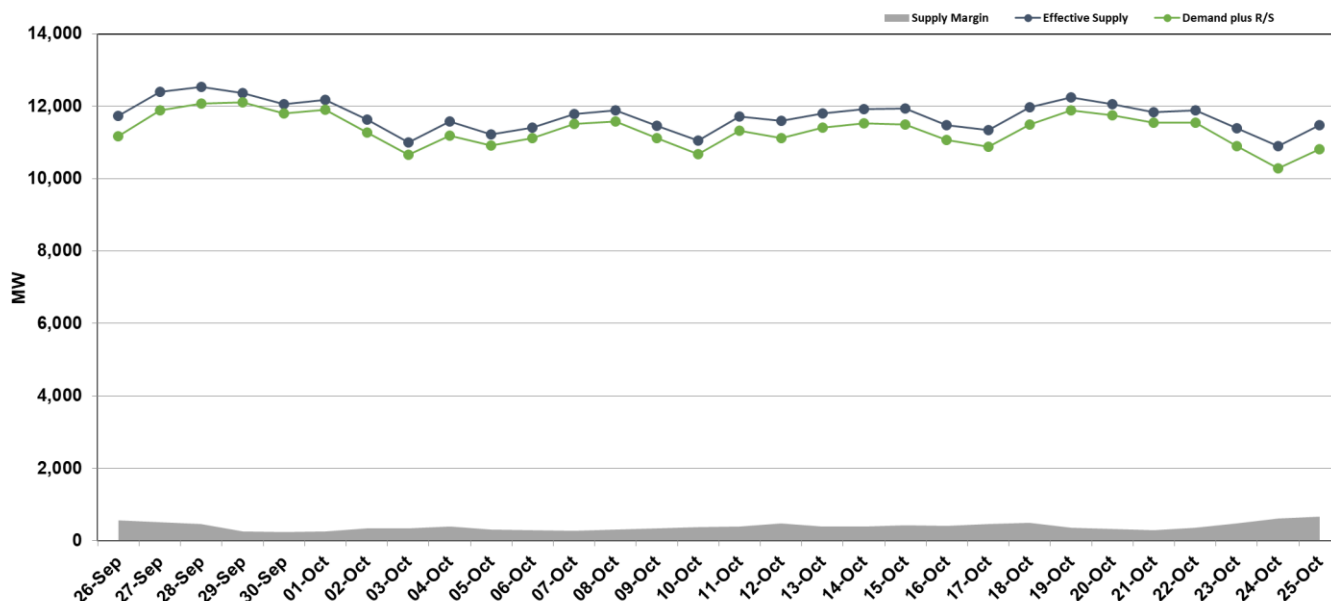


11,729
MW
(11,615 MW in September)

DEMAND PLUS RESERVE SCHEDULE



11,336
MW
(11,305 MW in September)



- Electricity demand with consideration of reserve schedules increased by an average of 2.1 percent or an average of 11,104 MW last month to 11,336 this month.
- Effective supply satisfied the increasing demand, but higher prices were also noted due to the high outage capacity from base load plants which usually provide low price offers.
- Average Supply Margin declined this month to 393MW from last month's 511MW, with several intervals under yellow alert level. The thinning of the supply margin became more evident because of the ramp limited capacities.

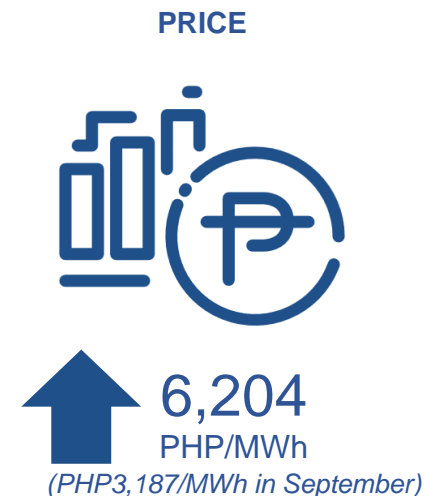
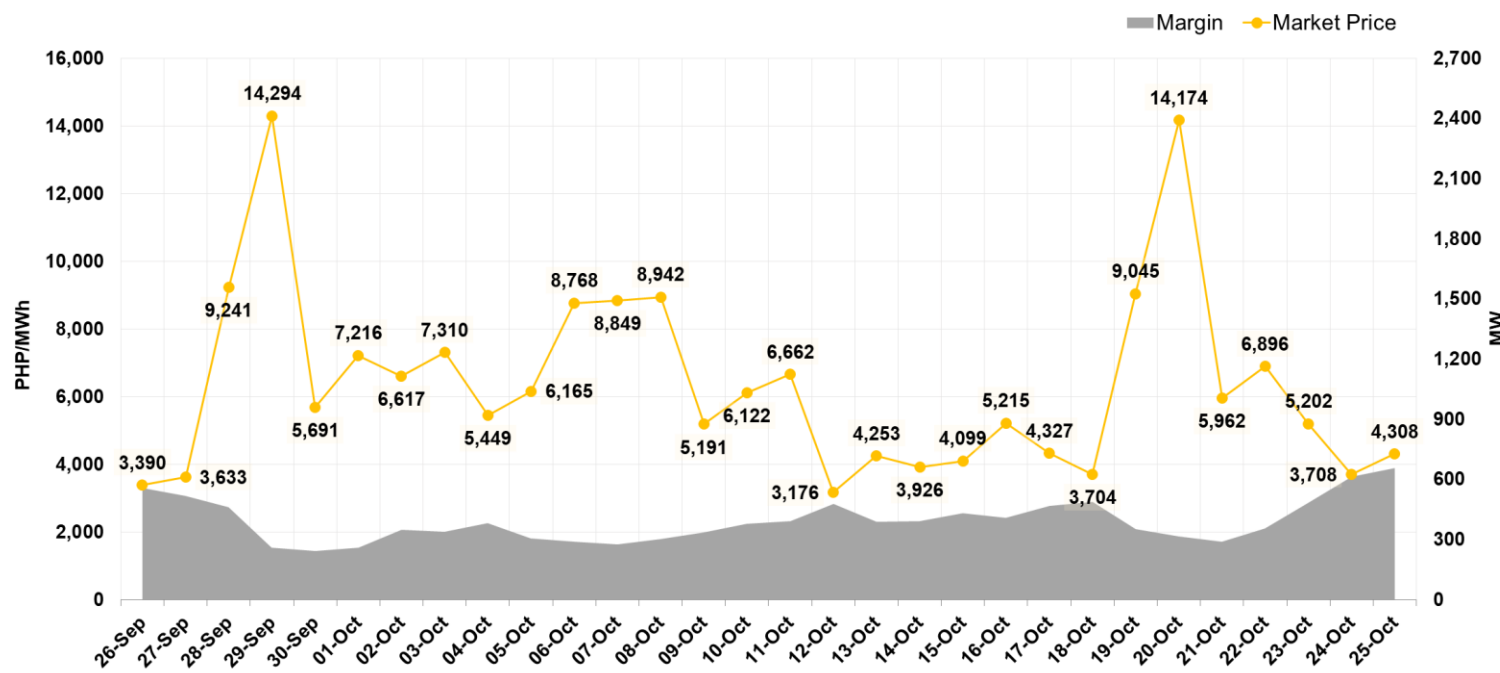
MARKET OUTCOME

Zone	Average LWAP (PHP/MWh)
NLUZON	6,462.46
MMANILA	6,686.18
SLUZON	6,602.16
LEYTE	6,632.29
CEBU	6,272.92
NEGROS	5,312.84
BOHOL	7,528.08
PANAY	5,539.64

The October billing month opened with relatively low market prices, however, episodes of price upticks on 29 September and 20 October were observed. These were mainly driven by the outages attributable to SPEG Malampaya gas restriction and several large power plants during their scheduled maintenance, and the relatively higher ramp-limited capacities. The secondary price cap was imposed to 725 intervals in the October billing month.

The government eased the community quarantine which categorized more areas from alert level 4 to alert level 3, implemented on October 1-31, 2021. This posted an increase in the system demand.

The damage in one of the submarine cables of National Grid Corporation of the Philippines (NGCP) connecting the Cebu and Negros islands was still left unresolved which diminished the transferring of capacities on either island from 180MW to just 90MW. The congestions affect the price discrepancy within the area and the rest of the grid, with Bohol having the highest load-weighted average price (LWAP).



MARKET OUTCOME

RAMP LIMITED CAPACITY

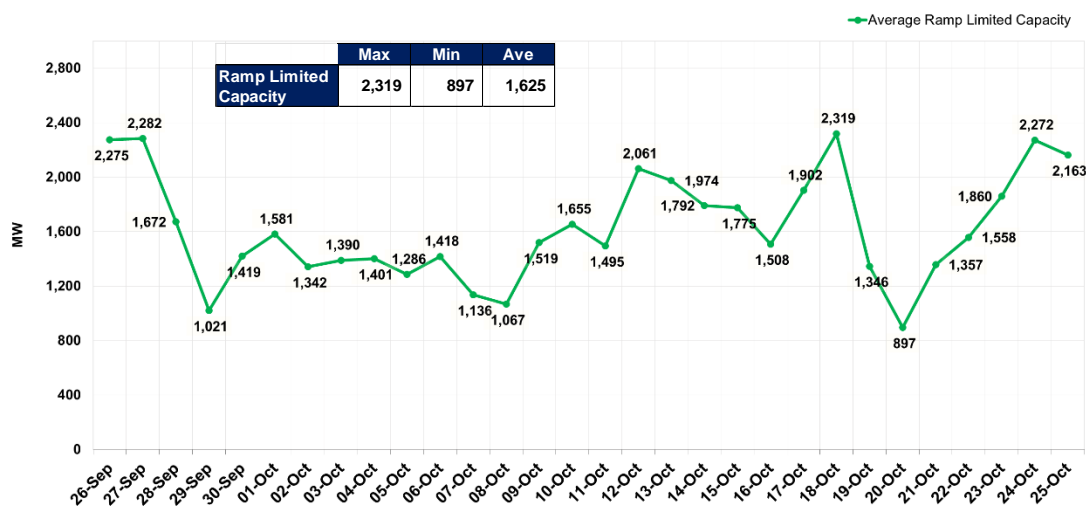
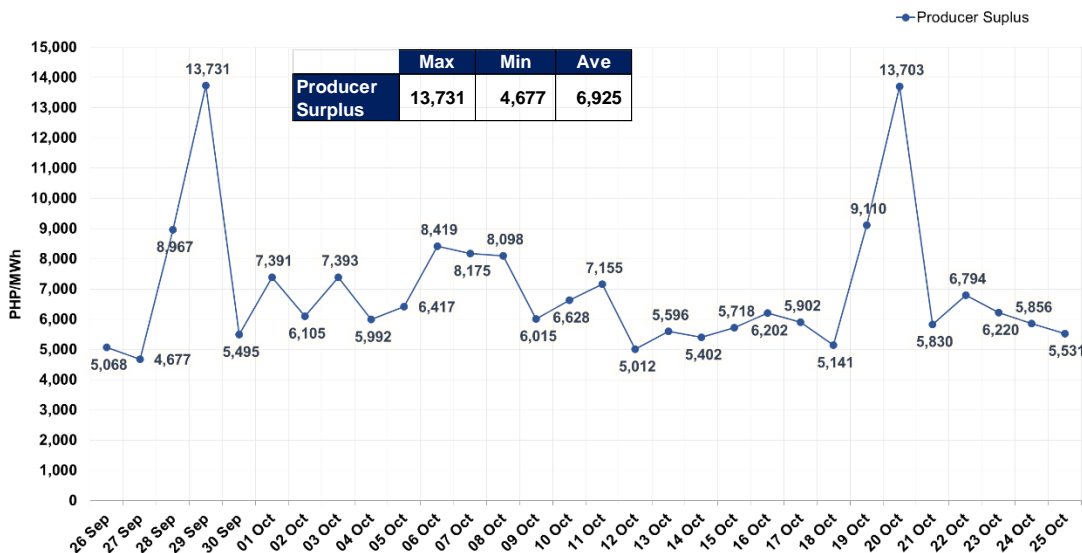
PRODUCER SURPLUS



1,625 MW
(2,671MW in September)



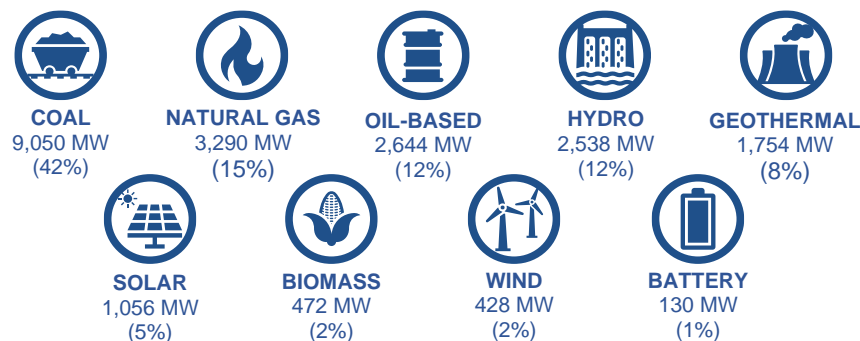
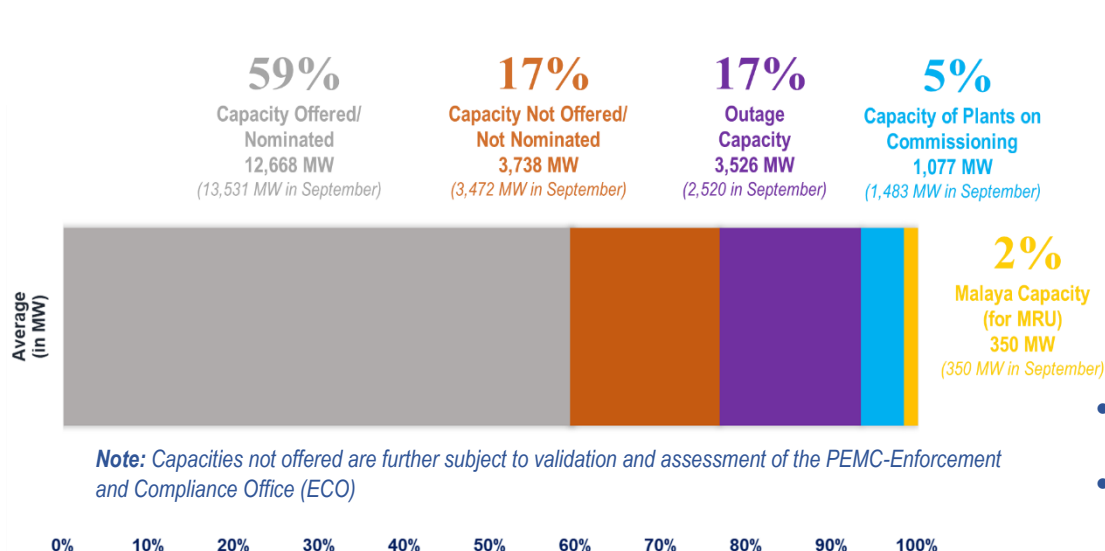
6,925 PHP
(4,914PHP in September)



Ramp limited capacities for the month of October decreased by an average of 39 percent from last month. Occurrences of ramp limited capacities were more evident in the new market regime due to shorter intervals requiring for faster delivery of scheduled generations. Subsequently, capacities offered/nominated went down and the outage level significantly increased, while the system demand level posted an increase.

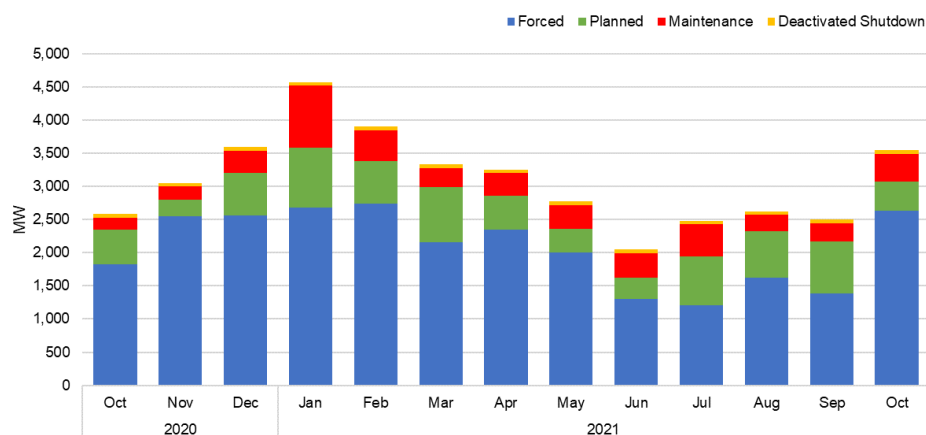
- Producer/generator surplus, which is derived from the difference between market price and offer price, averaged at PHP6,925/MWh during the period in review. The computed surplus is affected by changes in market and offer prices.
- Daily average price of the producer/generator surplus is derived from the weighted average prices of all the generator trading participants during peak and off-peak hours. Increase and decrease in the daily weighted average price depend on the generator schedule per dispatch interval.

CAPACITY PROFILE

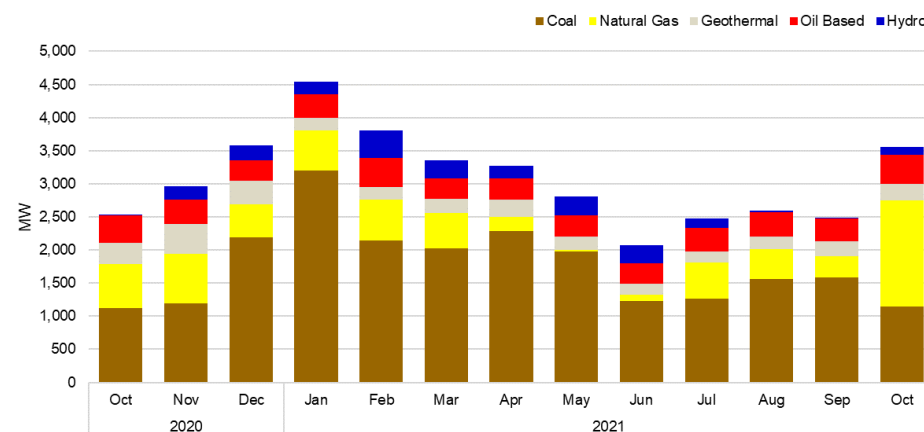


- The WESM registered capacity increased by 5.4 MW from a total of 21,356 MW which was a result of a noted change in the registered capacities of power plants.
- Outage capacities posted a significant increase for the month of October mostly accounted to forced outages from natural gas power plants and with the planned outages of coal plants.
- Generators on testing and commissioning (T&C) dropped to 6 percent of the total registered capacity. Six (6) plants were noted with expired T&C status for the month of October.

OUTAGE CAPACITY BY OUTAGE CATEGORY



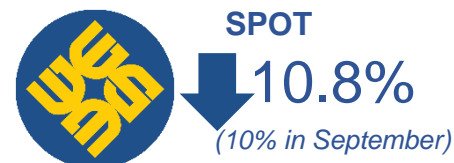
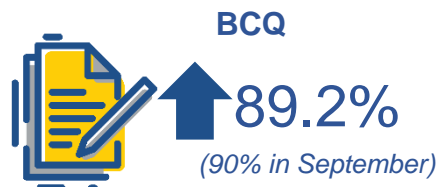
OUTAGE CAPACITY BY PLANT TYPE



Average outage capacity significantly increased due to forced outages mainly caused by the SPEX Malampaya maintenance, and maintenance outages which are noted to have been approved in the GOMP. For ease of reference, Annex A shows the detailed information on plant outages in all categories.

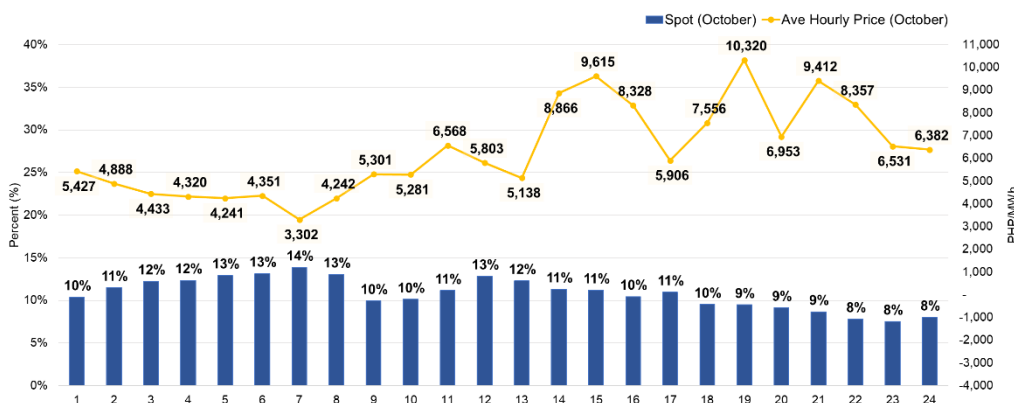
Drastic increase in natural gas' outage capacity was attributable to the scheduled maintenance of the SPEX Malampaya.

MARKET TRANSACTIONS

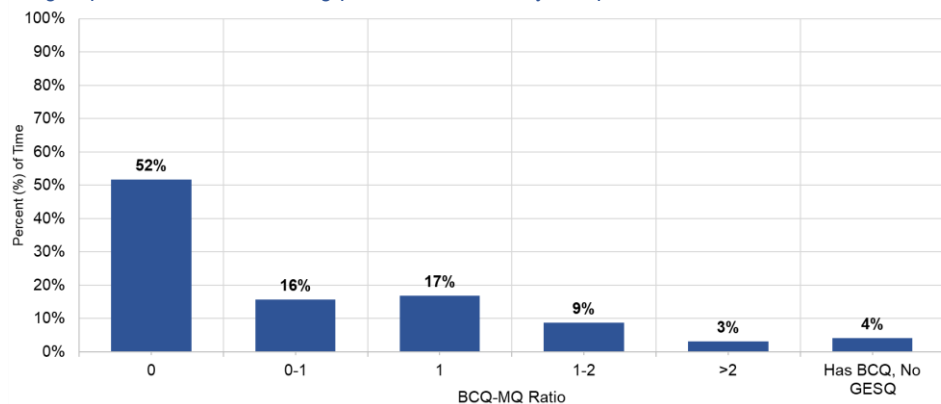


Note: Spot share percentage is computed as the ratio of spot over the metered quantity in MWh.

HOURLY SPOT

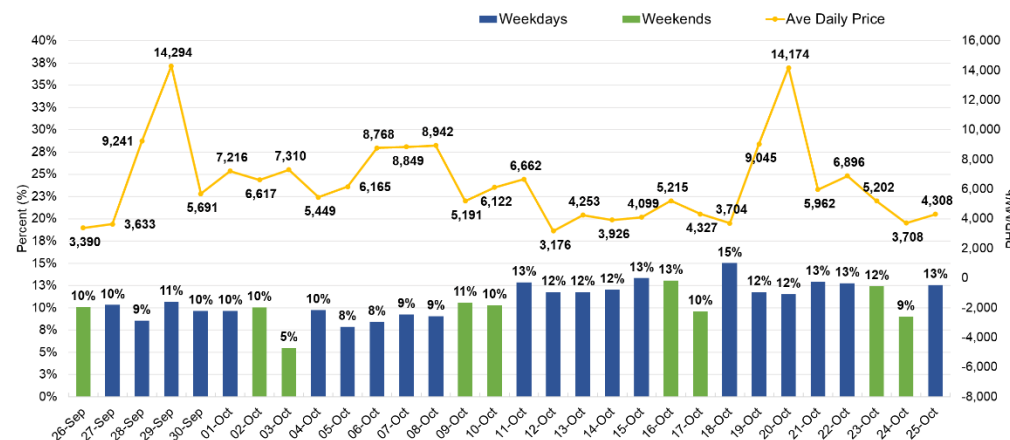


Total spot quantities of generator participants in October stood at an average of 10.9 percent during off-peak and 10.6 percent during peak hours. In general, the trend shows high spot transactions during periods of relatively low prices.



Note: The graph is derived from the occurrences of the BCQ-MQ ratio over time per generator trading interval.

DAILY SPOT



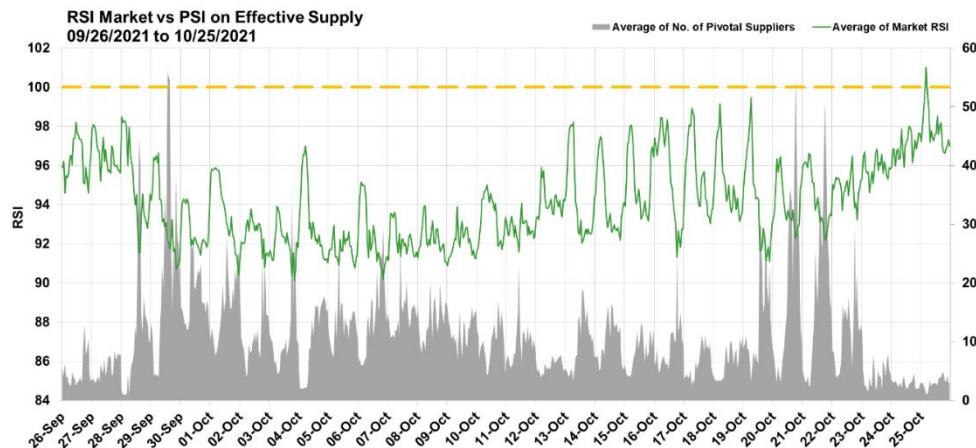
Spot share during weekdays averaged at 11.0 percent while it was 10.1 percent during weekends. The increase in the demand in some instances coupled with high outages, led to the exposure of consumptions as spot quantities in the market.

BCQ-MQ RATIO

- The resulting BCQ to MQ ratio of 0 demonstrates that the entire generations were fully sold in the market 52 percent of the time.
- Roughly 17 percent had a BCQ to MQ ratio of 1 which means that the entire metered quantities were allocated to serve bilateral contract obligations.
- Generators with no recorded MQ and had BCQ declarations, which means that it sourced from the market to serve their BCQ obligations, occurred 4 percent of the time.
- The remaining 28 percent accounted for BCQs consuming a fraction of their MQ (16 percent), declared BCQs up to twice their MQ (9 percent), and declared BCQs more than twice their MQ (3 percent).

STRUCTURAL COMPETITION INDICES

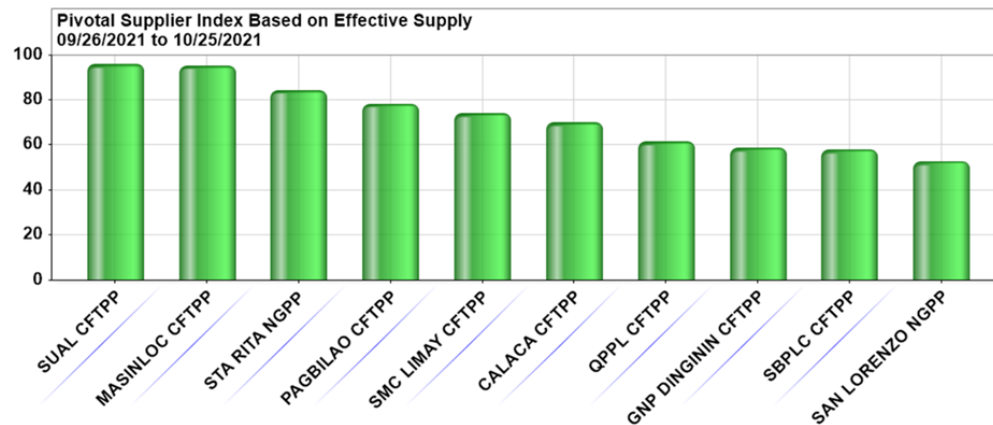
MARKET RSI



Out of the 8,640 trading intervals in October 2021 billing month, 8,611 intervals had a Residual Supply Index (RSI) below the 100 percent mark, indicating the prevalent presence of pivotal suppliers during the month.

The average market prices for intervals with RSI below 100 percent was PHP6,469/MWh while those with RSI above 100 was PHP928/MWh.

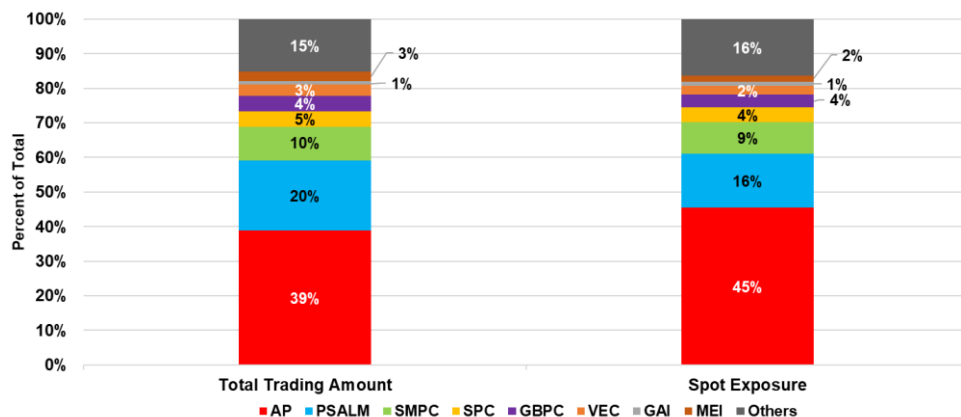
PIVOTAL PLANTS



A total of 148 power plants were pivotal during the period with 101 coming from Luzon and 47 from Visayas.

The relatively low level of effective supply translated to a low RSI and high number of pivotal suppliers per 5-min dispatch interval

TTA AND SPOT SHARE



- Aboitiz Power Corporation (AP) topped the list as the entity with the highest TTA share of sellers in the market with approximately 39 percent.
- Power Sector Assets and Liabilities and Management (PSALM) remained as the second highest TTA share of around 20 percent.
- San Miguel Power Corp. (SMPC) maintained its third place, ending with a 10 percent of TTA share.
- The top 3 highest TTA shares corresponded to high spot shares in the market.

DEFINITIONS, REFERENCES, AND INTERPRETATION

- **Pricing Error Notice (PEN)**
 - Pricing errors is a pricing algorithm in the market and are categorized according to cause, as either Network congestion pricing errors or non-congestion pricing errors. Pricing error notice shall be issued only for the market run where the pricing error is determined by the Market Operator to have occurred.
- **Secondary Price Cap (SPC)**
 - is a preventive mitigating measure instituted by the ERC to avoid excessive high market prices through its imposition on succeeding intervals, upon breach of PHP9,000/MWh Rolling Average of the generator-weighted average price (GWAP) for a running period of 3 days or 864 5-minute intervals. In this case, market prices are capped at PHP6,245/MWh.
- **Administered Price (AP)**
 - administered price determination methodology which shall be implemented by the Market Operator to impose administered prices on dispatch intervals under market suspension or market intervention.
 - administered price shall be established by the Market Operator in accordance with guiding principles as set forth by the WESM rules.
- **Generator/Producer Surplus**
 - Producer surplus represents the difference between the price a generator receives and their willingness to sell for each quantity.
- **Price Substitution Methodology (PSM)**
 - is a pricing algorithm that shall be implemented in all the regions where the WESM is in operation. In cases where a region/s has no interconnection with other regions, or has no exchange of power with other regions, this region/s shall be separately assessed for the application of the price substitution methodology.
 - The price substitution methodology shall apply to a *dispatch interval* when the trigger factor exceeds the threshold, which shall be set at 0.2, subject to annual review.
 - The dispatch schedules arrived at in the original (constrained) market solution for the relevant dispatch interval will stand and will be the basis for dispatch by the System Operator irrespective of the results of the unconstrained solution. Redispatch of generation units will be implemented by the System Operator in accordance with relevant provisions of the WESM Rules and Market Manuals, the Philippine Grid Code and other relevant rules, regulations, issuances, guidelines, and procedures.
- **Ramp Limited Capacity**
 - are generators restricted capacities due to the plants' intrinsic ramp rates.
 - Ramp rate is essentially the speed at which a generator can increase (ramp up) or decrease (ramp down) generation. Generating units have different characteristics, making some more suited to supplying certain needed functions.

Annex A. List of Major Plant Outages

Region	Plant Type	Plant/ Unit Name	Capacity (MW)	Date Out	Date In	Duration (Days)	Outage Type	Remarks
CLUZ	COAL	SMC 3	150	10/22/2021 0:59	10/24/2021 22:30	2.90	Forced Outage	Repair of coal feeder expansion bellows burnt
CLUZ	COAL	Sual 2	647	10/20/2021 12:45	10/23/2021 10:07	2.89	Forced Outage	Suspected condenser tube leak.
CLUZ	BIOF	Hypergreen	12	10/18/2021 6:39	10/23/2021 19:44	5.55	Forced Outage	To be determine.
CLUZ	COAL	SLTEC 1	121	10/18/2021 0:26	10/23/2021 23:13	5.95	Forced Outage	Tripped due to high furnace pressure.
CVIS	COAL	Kepco Salcon 1	103	10/16/2021 13:17	10/21/2021 5:41	4.68	Forced Outage	AUTO TRIPPED DUE TO POSSIBLE TUBE LEAK
CLUZ	HYD	Bakun 2	37	10/11/2021 16:49	10/21/2021 22:02	10.22	Forced Outage	High tail water.
CLUZ	HYD	Bakun 1	37	10/11/2021 16:48	10/19/2021 18:18	8.06	Forced Outage	High tail water.
CLUZ	COAL	Masinloc 3	335	10/10/2021 20:38	10/16/2021 23:57	6.14	Forced Outage	Tripped due to Furnace high pressure
CLUZ	COAL	GN Power 1	316	10/09/2021 22:31	10/15/2021 6:04	5.31	Forced Outage	Emergency shutdown due to stalled air pre-heater.
CVIS	OIL	TPVI 3	6.8	10/03/2021 21:40	10/06/2021 14:41	2.71	Forced Outage	AUTO-TRIPPED DUE TO HEAVY FUEL LEAK
CVIS	OIL	TPVI 4	6.8	10/03/2021 21:18	10/06/2021 14:34	2.72	Forced Outage	AUTO-TRIPPED DUE TO FUEL LEAK
CVIS	COAL	Kepco Salcon 1	103	10/03/2021 5:52	10/07/2021 3:47	3.91	Forced Outage	Manually cut-out due to possible boiler tube leak
CLUZ	NATG	Ilijan A2	190	10/01/2021 23:49	10/25/2021 17:04	23.72	Forced Outage	Malampaya Gas. SPEX Turn Around Activity from 02-21 October 2021.
CLUZ	NATG	Ilijan A3	220	10/01/2021 23:35	10/25/2021 16:04	23.69	Forced Outage	Malampaya Gas. SPEX Turn Around Activity from 02-21 October 2021.
CLUZ	NATG	Ilijan A1	190	10/01/2021 23:18	10/25/2021 12:19	23.54	Forced Outage	Malampaya Gas. SPEX Turn Around Activity from 02-21 October 2021.
CLUZ	COAL	GNP Dinginin 1	668	09/28/2021 4:56	09/30/2021 17:02	2.50	Forced Outage	Tripped from 500MW load due to actuation of turbine and generator safety protection.
CLUZ	HYD	Kalayaan 1	180	09/27/2021 11:30	10/02/2021 9:07	4.90	Forced Outage	Initial report-- Low insulation resistance of stator.
CVIS	GEO	Upper Mahiao 4	32	08/02/2021 0:06	10/01/2021 12:26	60.51	Maintenance Outage	PMS
CLUZ	COAL	SMC 3	150	09/04/2021 5:56	10/02/2021 0:01	27.75	Maintenance Outage	Annual Preventive Maintenance
CLUZ	COAL	SLTEC 1	121	08/16/2021 0:01	10/16/2021 0:01	61.00	Planned Outage	Preventive Maintenance until 15 October 2021
CLUZ	COAL	SLPGC 1	150	07/18/2021 2:02	10/15/2021 20:38	89.78	Forced Outage	Emergency shutdown due to boiler tube leak
CVIS	BIOF	SCBE	7.4	08/23/2021 21:59	10/13/2021 7:19	50.39	Forced Outage	Emergency offline due to boiler problem
CVIS	COAL	PEDC 1	83.7	09/25/2021 0:58	09/29/2021 16:25	4.64	Maintenance Outage	Under PMS
CLUZ	COAL	Pagbilao 2	382	08/21/2021 0:51	10/09/2021 22:21	49.90	Planned Outage	Planned Preventive Maintenance Outage until 19 September 2021
CVIS	GEO	Mahanagdong B1	5	09/07/2021 2:09	10/01/2021 13:50	24.49	Forced Outage	under assessment
CLUZ	COAL	GN Power 1	316	01/08/2021 18:26	10/09/2021 11:36	273.72	Forced Outage	Boiler tube leak.
CLUZ	GEO	Bacman 2	60	09/09/2021 0:17	10/08/2021 23:53	29.98	Planned Outage	PMS
CLUZ	NATG	Avion 2	50.3	08/15/2021 18:02	10/19/2021 23:30	65.23	Forced Outage	Extension of general inspection and maintenance (canceled non-firm RR schedule)