Market Surveillance Committee Monthly Market Assessment Report

26 January to 25 February 2022

SEPTEMBER 2022

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

The information contained in this document is based on data that are subject to continuous verification by the

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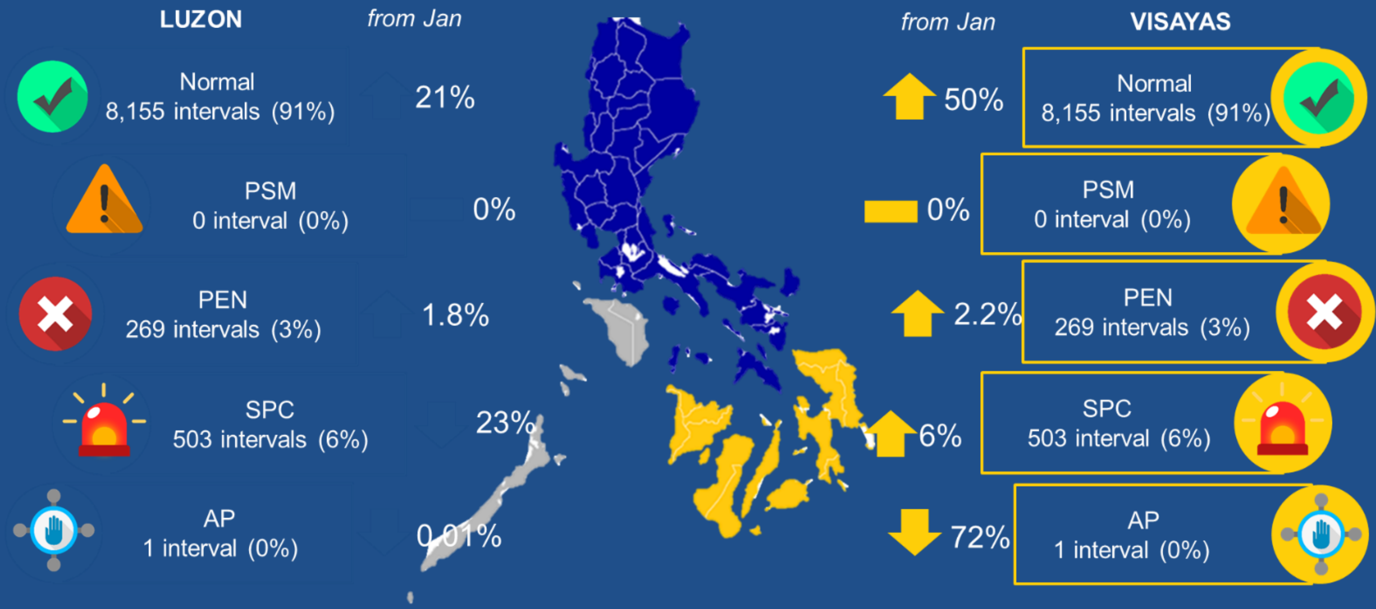
ASSESSMENT OF THE MARKET

SUMMARY OF PRICING CONDITIONS



- The cumulative 3-day average computation of generator-weighted average prices (GWAP) breached the PHP9,000/MWh threshold and resulted to the imposition of secondary price cap for 1,065 intervals from 375 intervals last month, in both Luzon and Visayas. Regional imposition of secondary price cap was also observed in Luzon for 1,468 intervals. The increase was brought about by insufficient system supply that led to much higher prices in the market.
- Intervals with pricing error notices were mainly due to inappropriate input data which affected prices and schedules across 69 intervals.
- Price Substitution Methodology (PSM) was imposed to 7 intervals due to network constraints. Upon commercial operations of the Enhanced WESM Design and Operations (EWDO) radial lines are now excluded in the PSM criteria.
- Market Intervention (MI) was imposed to the Visayas region due to the onslaught of typhoon Odette in December 2021, followed by the ERC's declaration of Market Suspension (MS) affecting 6,456 intervals in January 2022.

NOTABLE HIGHLIGHTS

1. Lifting of the ERC declared MS due to the impact of typhoon Odette
   - ERC lifted Market Suspension in the Bohol Island after the successful repair and re-energization of the 138KV Maasin-Ubay line on February 9, 2022.
2. Recorded outages this month decreased to an average of 3,912 MW from 4,268 in January 2022 billing period
   - Attributable with the re-operationalization of transmission lines in the Visayas region.
3. Average system demand noted an increase in February 2022
   - Notable increase of 14.6 percent from 8,695 MW of the last month to 9,961 MW as the transfer of energy from region to another normalized.
4. The effective supply likewise increased to 11,488 MW from 10,019 MW due to the decrease in outage capacity.
5. Market prices posted an average decrease of 13.1 percent.
   - Average price declined to PHP5,954/MWh from PHP6,851/MWh in January 2022
6. Year-on-year comparison of monthly average price posted a 161 percent increase from an average of PHP2,281/MWh last year during the height of the pandemic with strict implementation of quarantine measures.

MARKET OUTCOME

SUPPLY MARGIN

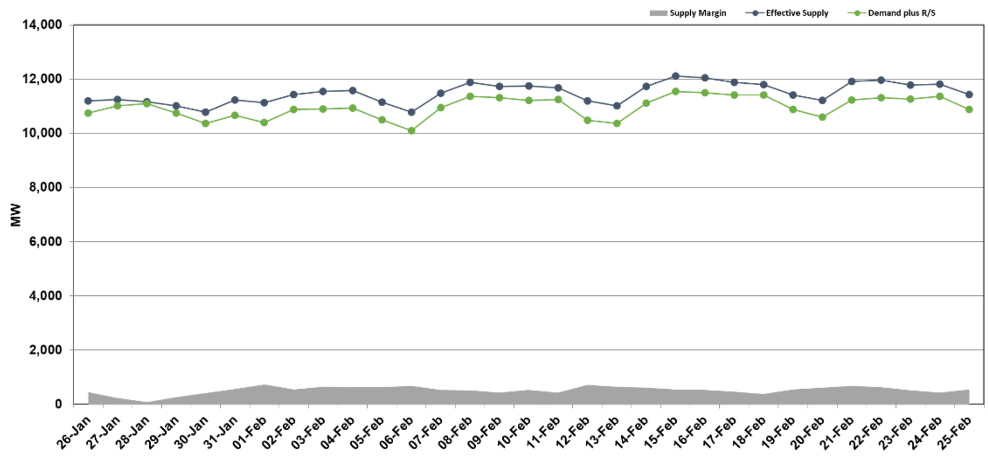
525
MW
(588 MW in January)

EFFECTIVE SUPPLY

11,488
MW
(10,019 MW in January)

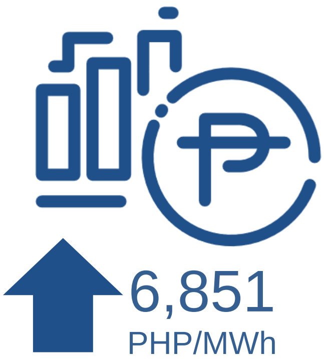
DEMAND PLUS RESERVE

10,963
MW
(9,431 MW in January)



- Electricity demand with consideration of reserve schedules increased by an average of 16 percent or 9,431 MW last month to 10,963 MW this month.
- Effective supply likewise increased as the level of outage capacity decreased brought about by, among others, complete restoration of transmission lines affected by the typhoon Odette.
- Average Supply Margin was generally observed to have declined by an average of 11 percent or 526 MW from 588 MW last January billing due to the increase in the level of system demand despite the increase in the effective supply.

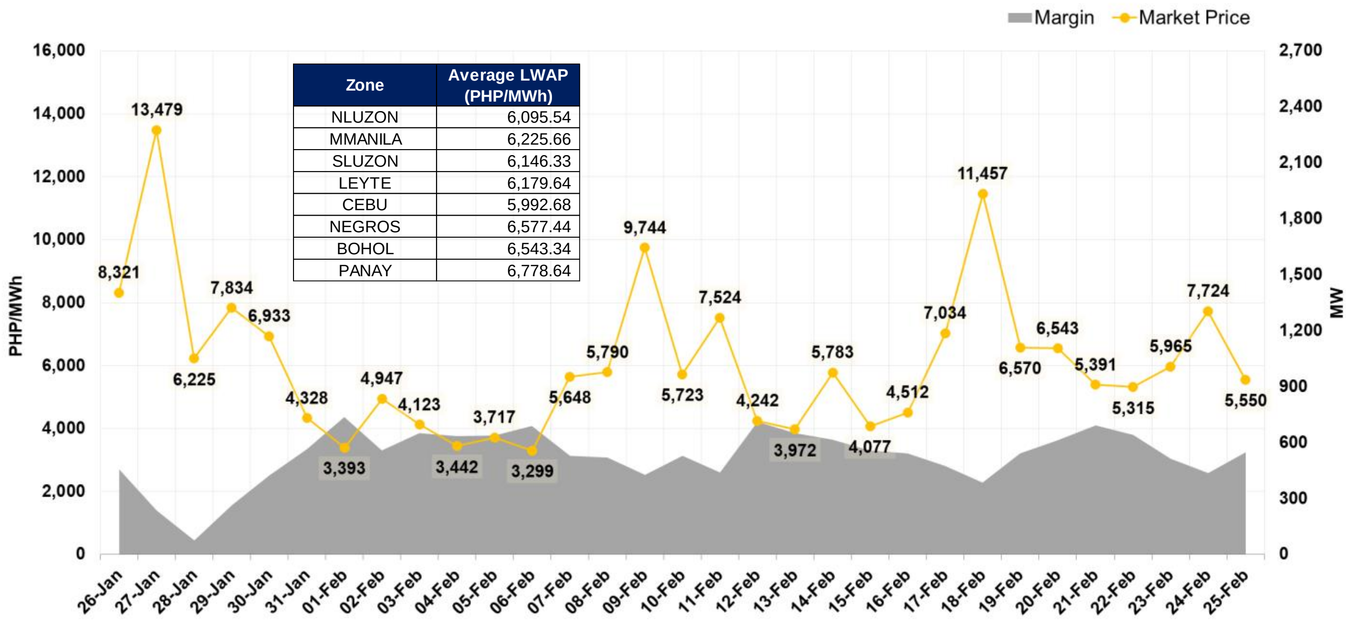
PRICE



6,851
PHP/MWh
(PHP6,224/MWh in December)

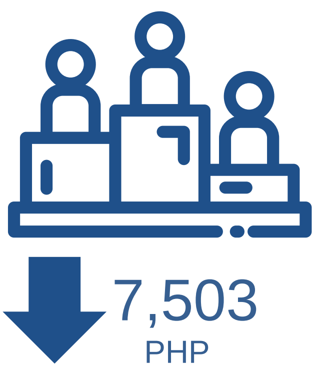
Given the dynamics between the supply and demand, the January 2022 billing month opened with relatively high level of market prices. However, average daily prices went on a downtrend over the course of month attributed to the restoration of transmission lines which enabled the transfer of energy between two regions, resulting to a higher level of effective supply causing the electricity price to decrease by an average of 13.1 percent from previous month's PHP6,851/MWh to PHP5,954/MWh.

The 15 June 2021 incident involving the underwater drilling operations of DPWH that damaged one of the submarine cables of NGCP connecting the Cebu-Negros islands continuously affected the power rates in some areas of the Visayas region.

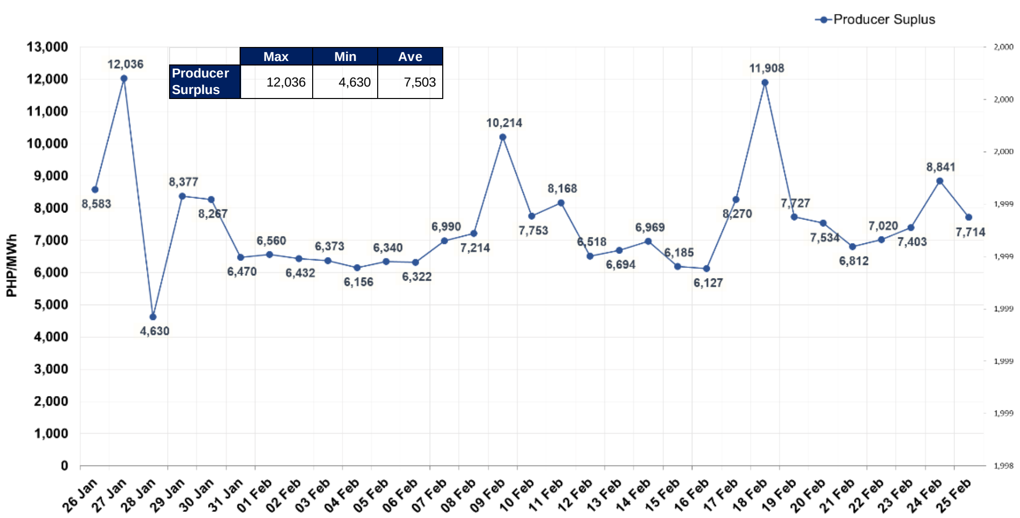


Zone	Average LWAP (PHP/MWh)
NLUZON	6,095.54
MMANILA	6,225.66
SLUZON	6,146.33
LEYTE	6,179.64
CEBU	5,992.68
NEGROS	6,577.44
BOHOL	6,543.34
PANAY	6,778.64

PRODUCER SURPLUS



7,503
PHP
(8,052MW in January)



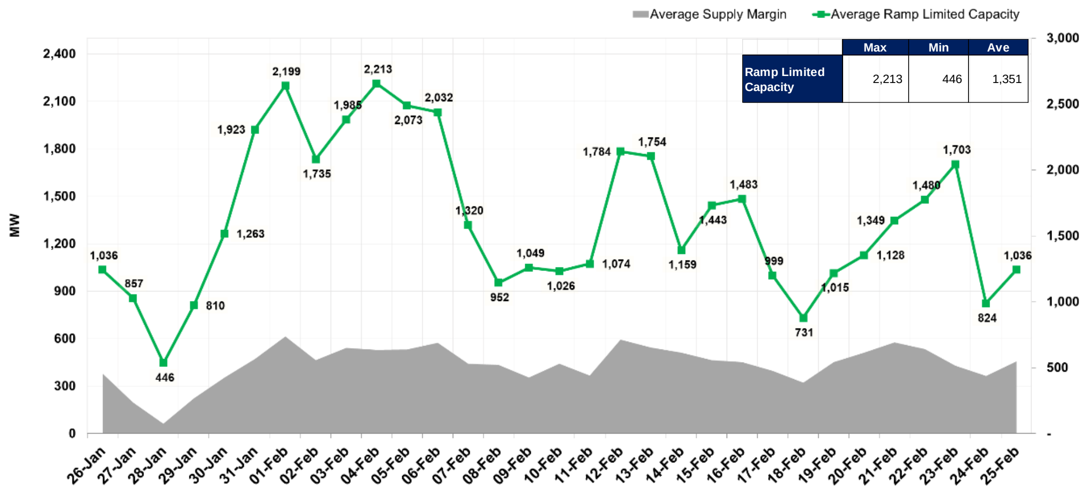
	Max	Min	Ave
Producer Surplus	12,036	4,630	7,503

Producer/generator surplus, derived from the difference between actual market price and respective offer prices, averaged at PHP7,503/MWh across all generators during the month.

Daily average price of the producer/generator surplus was derived from the daily weighted average price 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.

RAMP LIMITED CAPACITY

1,351
MW
(2,013MW in January)



Ramp limited capacities for the month of February decreased by 33 percent. 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 up due to the observance of lower level of outage capacities.

CAPACITY PROFILE

COAL
9,050 MW
(43%)

NATURAL GAS
3,286 MW
(15%)

OIL-BASED
2,337 MW
(12%)

HYDRO
2,538 MW
(12%)

GEOTHERMAL
1,754 MW
(8%)

SOLAR
1,058 MW
(5%)

BIOMASS
421 MW
(2%)

WIND
428 MW
(2%)

BATTERY
230 MW
(1%)

- The WESM registered capacity in February 2022 retained its level at 21,099.6 MW. The net registered capacity had no change from January 2022.
- The number of generators on testing and commissioning (T&C) dropped and constituted only 2 percent of the total registered capacity. Provisional Authority to Operate (PAO) or Certificate of Compliance (COC) of 16 plants were under evaluation/review by the ERC. One (1) plant has been issued with COC but has not been injecting power to the grid.

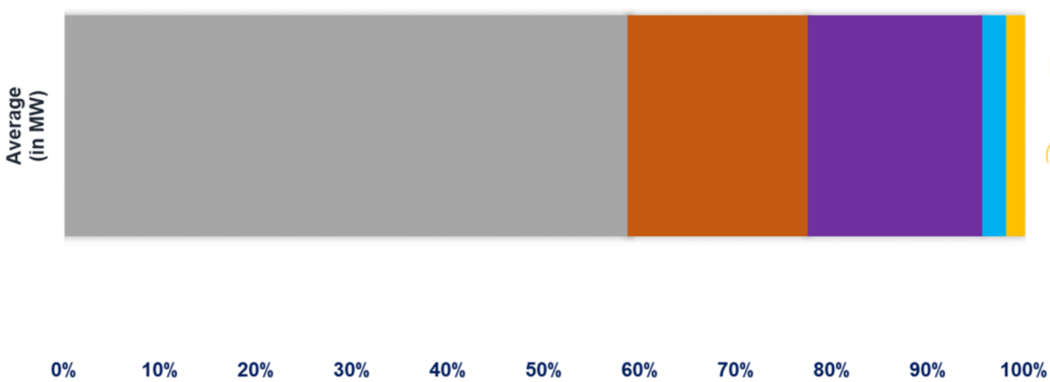
60%
Capacity Offered/ Nominated
12,616 MW
(11,083 MW in January)

19%
Capacity Not Offered/ Not Nominated
4,044 MW
(4,141 MW in January)

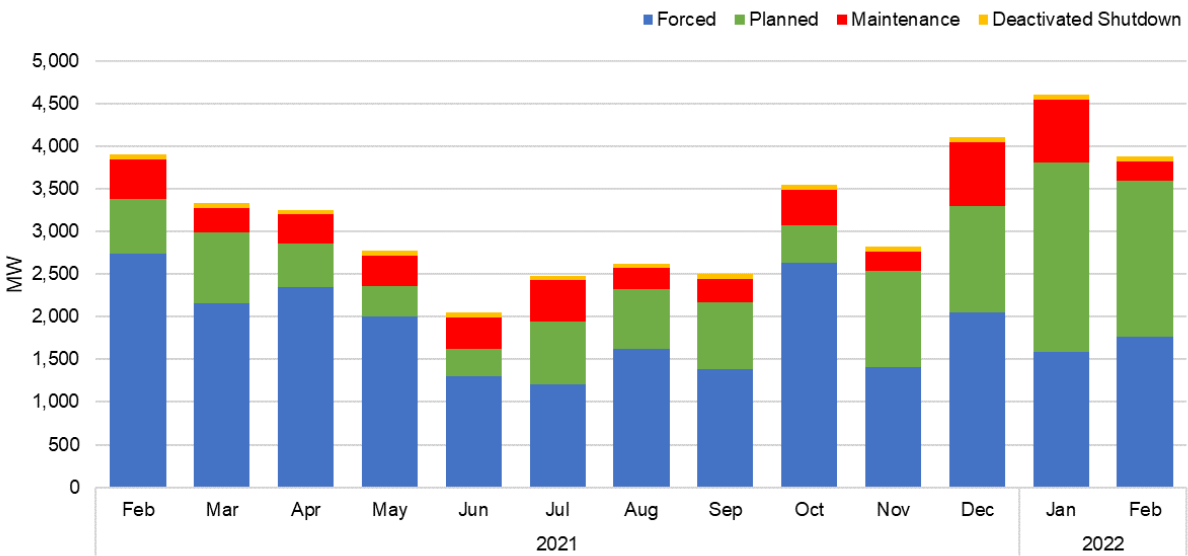
19%
Outage Capacity
3,912 MW
(4,628 in January)

2%
Capacity of Plants on Commissioning
527 MW
(671 MW in January)

2%
Malaya Capacity (for MRU)
130 MW
(130 MW in January)

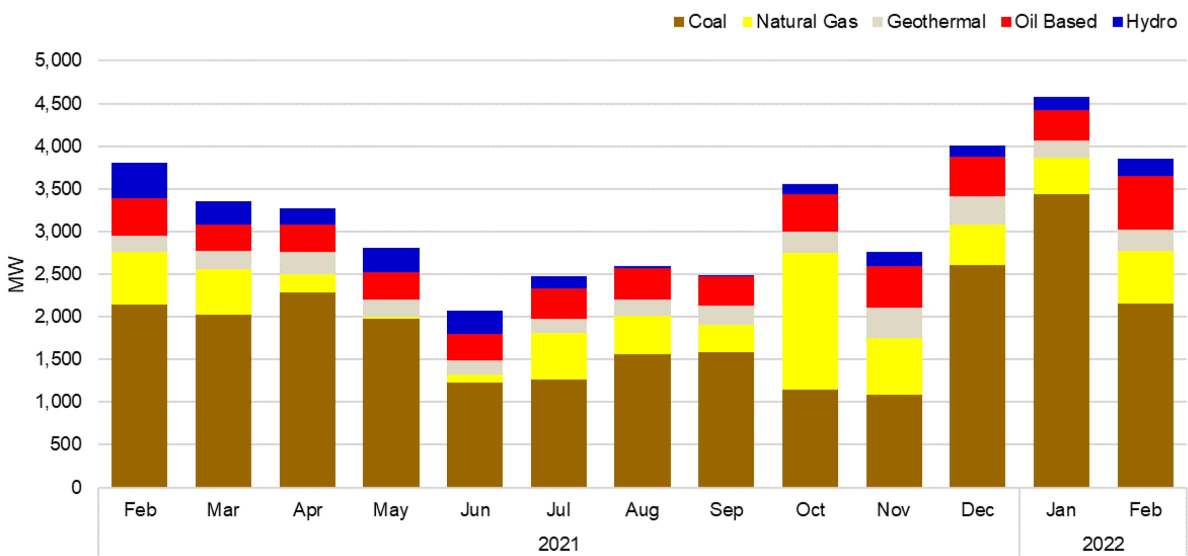


OUTAGE CAPACITY BY OUTAGE CATEGORY



Average outage capacity was generally observed to have decreased for the February billing. All categories posted a decrease except for forced outage which was noted to have an average increase of 11 percent from previous month attributed to forced outages from natural gas power plants brought about by technical issues of the plants and the effects of the gas restriction from Malampaya.

OUTAGE CAPACITY BY PLANT TYPE



The outages in February 2022 billing month which mostly came from large coal, Oil-based and natural gas generators generally decreased. Outage capacity decreased to 3,064 MW on 04 February 2022, at intervals 0910H to 1055H, following the decreasing outage capacities from Coal and Oil-based power plants. The outage level further decreased towards the end of the month, closing the February 2022 month at around 4,000 MW. For ease of reference, Annex A shows the detailed information on plant outages in both categories.

MARKET TRANSACTIONS

BCQ

88.2%

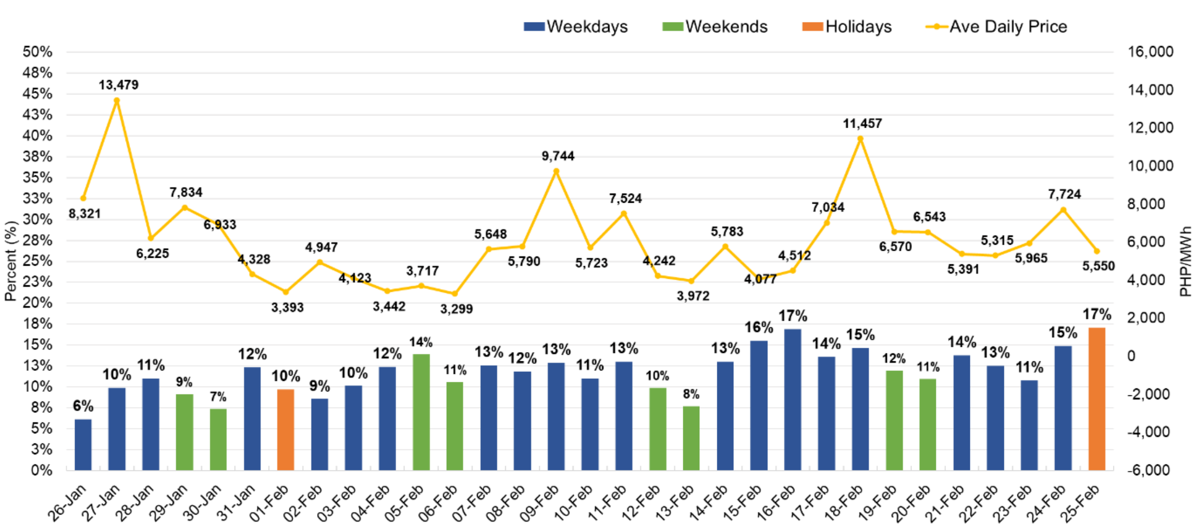
(92.7% in January)

SPOT

11.8%

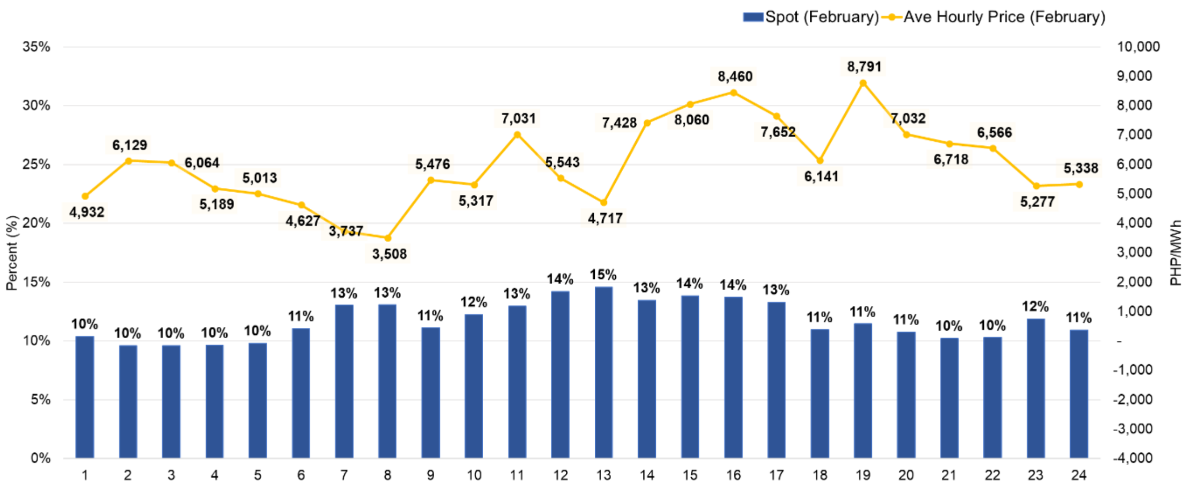
(7.3% in January)

DAILY SPOT



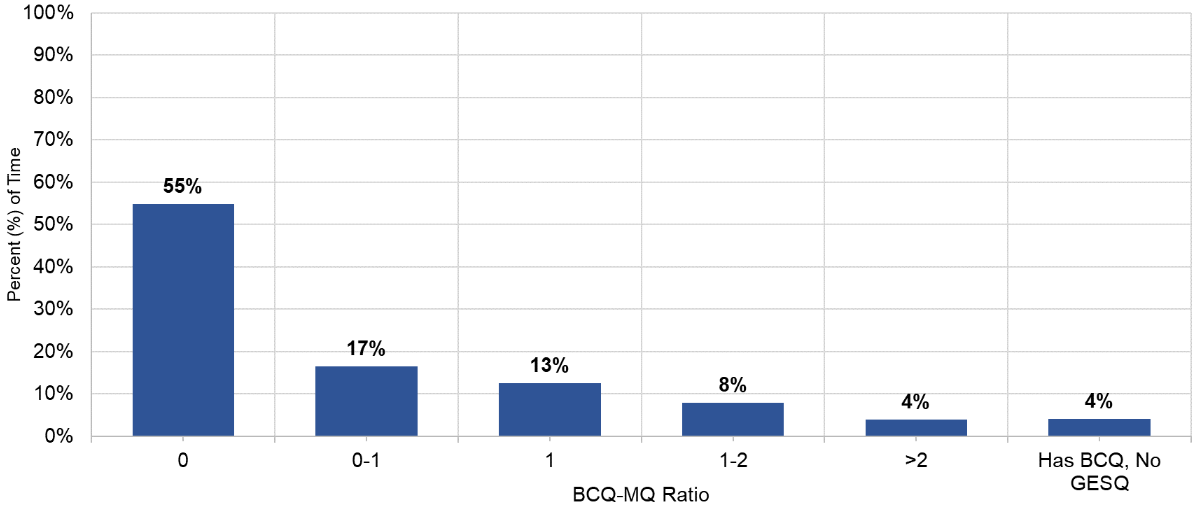
Spot share during weekdays averaged at 12.4 percent while the spot share during weekends average at 10.2 percent. The relatively low market prices due to high level of supply may have contributed to the resulting amount of spot quantities exposed in the market. Higher exposures during the weekend may have been brought about by lower market prices during these instances due to lower demand consumptions which essentially results to lower spot prices.

HOURLY SPOT



Total spot quantities of generator participants in February stood at an average of 10.9 percent during off-peak and 12.7 percent during peak hours. In general, the trend shows high spot transactions during periods of relatively low prices.

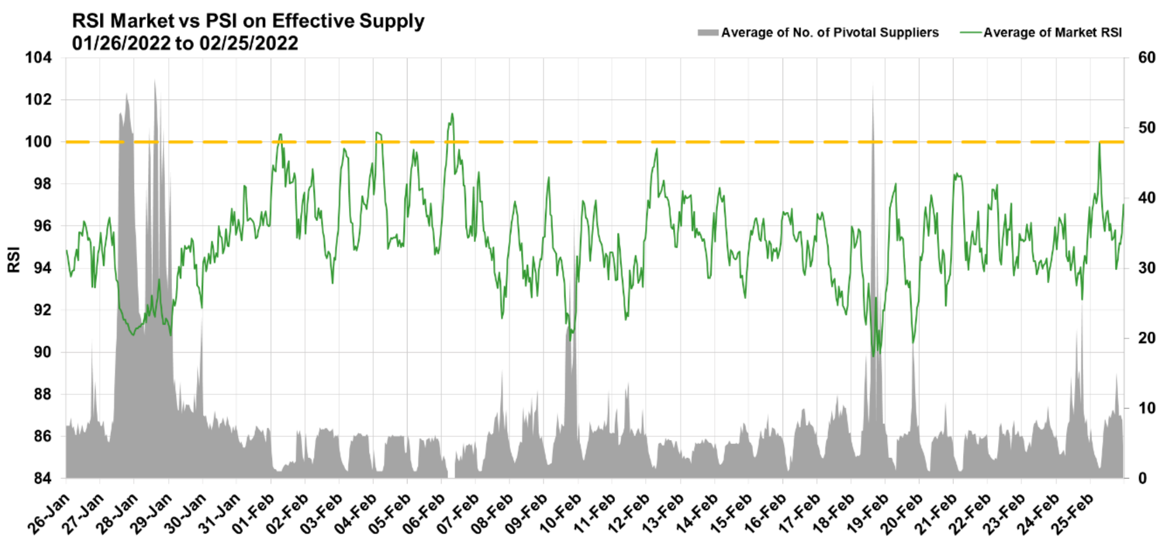
BCQ-MQ RATIO



- The resulting BCQ to MQ ratio of 0 demonstrates that the entire generated quantities were fully sold in the market 55 percent of the time.
- Roughly 13 percent of the time had a BCQ to MQ ratio of 1 which means that the entire metered quantities were being allocated to serve bilateral contract obligations.
- Generators with no MQ and fully bought energy in the market to serve their bilateral contract obligations were accounted at 4 percent of the time.
- The remaining 28 percent accounted for BCQs consuming a fraction of their MQ (17 percent), declared BCQs up to twice their MQ (8 percent), and declared BCQs more than twice their MQ (4 percent).

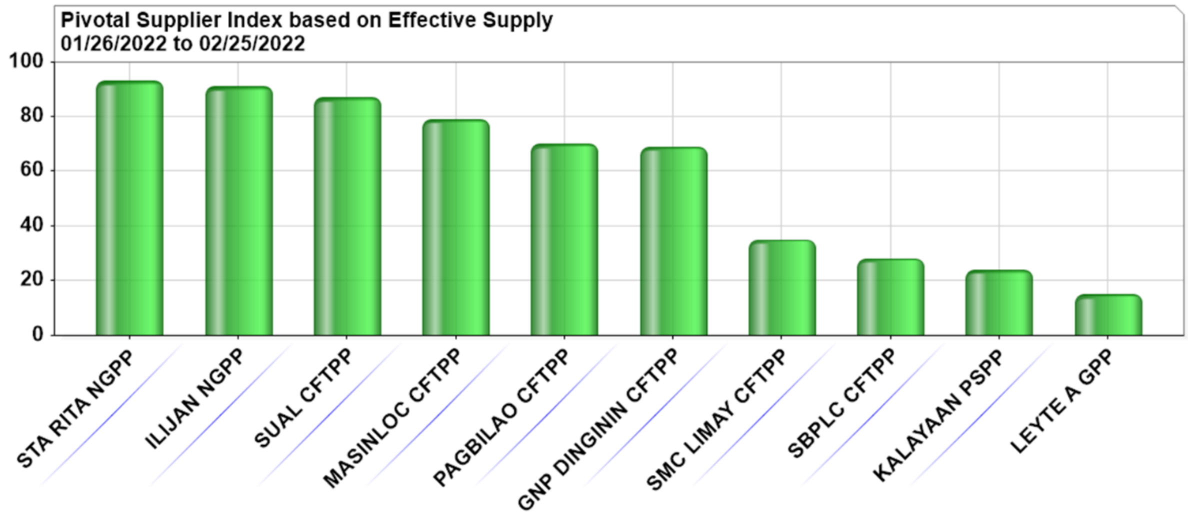
STRUCTUTAL COMPETITION INDICES

MARKET RSI



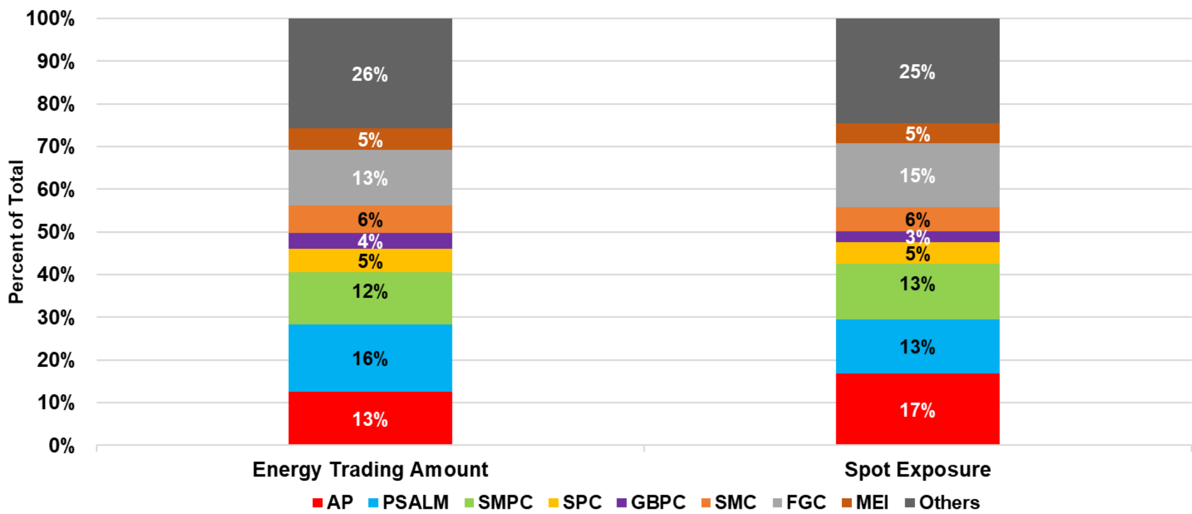
Out of the 8,928 trading intervals of the February 2022 billing month, 8,751 intervals had a Residual Supply Index (RSI) below the 100 percent mark, indicating presence of pivotal suppliers.
The average market prices for intervals with RSI below 100 percent was PHP6,194/MWh while those with RSI above 100 was PHP1,977/MWh.

PIVOTAL PLANTS



A total of 151 power plants were pivotal during the period with 105 coming from Luzon and 46 from Visayas.
The notable increase in effective supply due to low outage level translated to a high RSI yet high number of pivotal suppliers was still evident per 5-min dispatch interval.

ETA AND SPOT SHARE



- Power Sector Assets and Liabilities and Management (PSALM) topped the list as the entity with the highest ETA share of sellers in the market with approximately 16 percent.
- First Gen Corp (FGC) and Aboitiz Power (AP) came in as the second highest share of around 13 percent.
- San Miguel Power Corp. (SMPC) became third place this month, ending with a 12 percent of ETA share.
- The top 3 highest ETA shares comprised 54% of the total shares in the market.
- Energy trading amount is derived from the total energy sold and purchased in the market.

Annex A. Definitions of Term

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.

- **Must Run Unit**
  - Is a generating unit identified and instructed, on real time or scheduled basis, by the System Operator to either come on-line or provide additional energy on a particular Trading Interval but the dispatch of which is said to be Out of Merit to address System Security requirements. However, MRUs shall be utilized only after the System Operator has exhausted all available Ancillary Services.
- **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.

Philippine Electricity Market Corporation

MMAR-2022-02

Annex B. List of Major Plant Outages

Plant Type	Plant/ Unit Name	Capacity (MW)	Date Out	Date In	Duration (Days)	Outage Type	Remarks
OIL	TPVI 5	6.8	02/19/2022 18:45	02/24/2022 13:22	4.78	Forced Outage	TRIPPED
COAL	GN Power 1	316	02/18/2022 14:43	02/25/2022 3:02	6.51	Forced Outage	Emergency shutdown due to suspected boiler tube leak
NATG	Ilijan A2	190	02/17/2022 19:31	02/22/2022 9:54	4.60	Forced Outage	Unplanned outage due to observed hotspot at switchyard CT7.
COAL	GN Power 2	316	02/17/2022 2:40	02/20/2022 10:21	3.32	Forced Outage	Emergency shutdown to repair IDF B.
OIL	Limay 6	60	02/17/2022 0:03	02/20/2022 8:56	3.37	Forced Outage	Declared unavailable due to high vibration bearing 2
GEO	Bacman 3	20	02/16/2022 2:27	02/18/2022 3:51	2.06	Forced Outage	Affected by over-current protection of Palayan-Cawayan line.
COAL	SLTEC 2	122.9	02/16/2022 0:02	02/23/2022 13:23	7.56	Forced Outage	Extended outage.
BIOF	VMC	2.5	02/15/2022 9:47	02/21/2022 11:41	6.08	Maintenance Outage	Offline due to weekly maintenance
BIOF	San Carlos Bio	20	02/14/2022 12:42	02/21/2022 0:06	6.47	Maintenance Outage	Offline due to conveyor problem. Under test and commissioning
HYD	San Roque 2	145	02/14/2022 0:01	02/26/2022 0:01	12.00	Planned Outage	Annual Unit Inspection until 25 February 2022
HYD	Kalayaan 3	180	02/14/2022 0:01	02/19/2022 16:11	5.67	Planned Outage	Maintenance outage until 20 February 2022
NATG	Ilijan B1	190	02/11/2022 14:37	02/17/2022 15:59	6.06	Forced Outage	Affected by the Malampaya gas supply restriction.
BIOF	G2REC	10.8	02/10/2022 20:36	02/13/2022 9:03	2.52	Forced Outage	Waste water treatment problem.
COAL	GN Power 2	316	02/10/2022 16:01	02/12/2022 20:01	2.17	Forced Outage	Emergency Shutdown due to Air Heater Tube Leak
COAL	GN Power 1	316	02/09/2022 12:32	02/14/2022 23:12	5.44	Forced Outage	Emergency shutdown due to boiler tube leak.
SOLR	Islasol 2	27.2	02/08/2022 4:20	02/11/2022 21:01	3.70	Forced Outage	Auto-tripped due to trouble on their 13.8kV Main VCB.
GEO	MGPP 2	12	02/08/2022 0:20	02/23/2022 10:36	15.43	Planned Outage	Planned Outage
OIL	Bohol 3	4.2	02/06/2022 11:05	02/09/2022 18:03	3.29	Forced Outage	Affected due to isolation of Ubay Corella 138 KV line.
GEO	Mahanagdong B1	5	02/02/2022 2:23	02/06/2022 6:56	4.19	Forced Outage	Cut out
COAL	PEDC 2	83.7	02/02/2022 0:45	02/25/2022 4:53	23.17	Planned Outage	Planned Outage
GEO	MGPP 1	20	02/01/2022 0:22	02/20/2022 16:42	19.68	Planned Outage	Planned Outage
COAL	SMC 2	150	01/31/2022 23:35	02/24/2022 1:32	23.08	Planned Outage	On planned outage from 01--21 February 2022.
OIL	Limay 1	60	01/31/2022 0:05	02/03/2022 8:17	3.34	Planned Outage	Planned outage on 31 January--06 February 2022
GEO	PGPP1 Unit 3	37.5	01/29/2022 12:06	02/19/2022 10:04	20.92	Forced Outage	Auto-tripped due to generator stator winding temperature very high.
OIL	Limay 6	60	01/28/2022 22:19	02/09/2022 16:41	11.77	Forced Outage	Tripped with 60MW load.
OIL	TPC Carmen 2	10	01/26/2022 10:40	01/28/2022 14:32	2.16	Forced Outage	TURBO CHARGER PROBLEM
COAL	THVI 1	169	01/15/2022 2:32	01/31/2022 1:15	15.95	Planned Outage	APMS
COAL	Sual 2	647	12/29/2021 23:44	01/30/2022 20:03	31.85	Planned Outage	On Planned Outage from 30 Dec 2021 to 12 Feb 2022(RECLASSIFIED FROM FORCE. OMC OUTAGE)
COAL	SLTEC 2	122.9	12/17/2021 0:09	02/16/2022 0:01	60.99	Planned Outage	Preventive Maintenance
COAL	SLPGC 2	150	12/30/2021 0:28	02/23/2022 19:07	55.78	Planned Outage	On Planned Outage from 30 Dec 2021 to 23 Feb 2022.
COAL	SLPGC 1	150	01/23/2022 8:23	01/31/2022 8:55	8.02	Forced Outage	Emergency shutdown due to boiler tube leak.
HYD	San Roque 3	145	01/24/2022 0:05	02/05/2022 0:07	12.00	Planned Outage	Planned outage till 04 February 2022 (2400H)
NATG	San Lorenzo 2	265	01/20/2022 3:39	02/25/2022 11:34	36.33	Planned Outage	Maintenance Outage until 23 February 2022
GEO	PGPP1 Unit 3	37.5	01/19/2022 6:57	01/28/2022 16:01	9.38	Maintenance Outage	Offline due to corrective maintenance activities.
COAL	PEDC 3	150	01/01/2022 0:35	01/31/2022 16:08	30.65	Planned Outage	APMS
COAL	Pagbilao 3	420	01/08/2022 0:06	02/11/2022 12:17	34.51	Planned Outage	Planned Outage from 08 January - 06 February 2022(RECLASSIFIED FROM FORCE. OMC OUTAGE)
COAL	Masinloc 3	335	01/01/2022 0:01	01/27/2022 5:31	26.23	Planned Outage	Planned outage. Repair of Primary Air Fan.
GEO	Mahanagdong B1	5	01/22/2022 18:49	01/29/2022 7:26	6.53	Forced Outage	EMERGENCY CUT-OUT due to acidic cooling water (2-3 days per schedule)
OIL	Limay 8	90	01/24/2022 16:23	01/31/2022 16:49	7.02	Forced Outage	Tripped due to temperature metal bearing max.
NATG	Ilijan B2	190	01/05/2022 21:51	02/11/2022 10:27	36.53	Forced Outage	Affected by the Malampaya gas supply restriction.
COAL	GN Power 2	316	01/22/2022 18:49	02/06/2022 20:47	15.08	Forced Outage	Tripped due to drum level high high.
COAL	GN Power 1	316	01/11/2022 18:17	02/03/2022 0:17	22.25	Forced Outage	Emergency shutdown due to possible tube leak.
BIOF	GIFT	12	01/04/2022 11:13	01/29/2022 11:20	25.00	Planned Outage	APM until 31 Jan 2022
NATG	Avion 1	47.2	12/10/2021 17:01	02/06/2022 20:52	58.16	Forced Outage	Thorough inspection.