



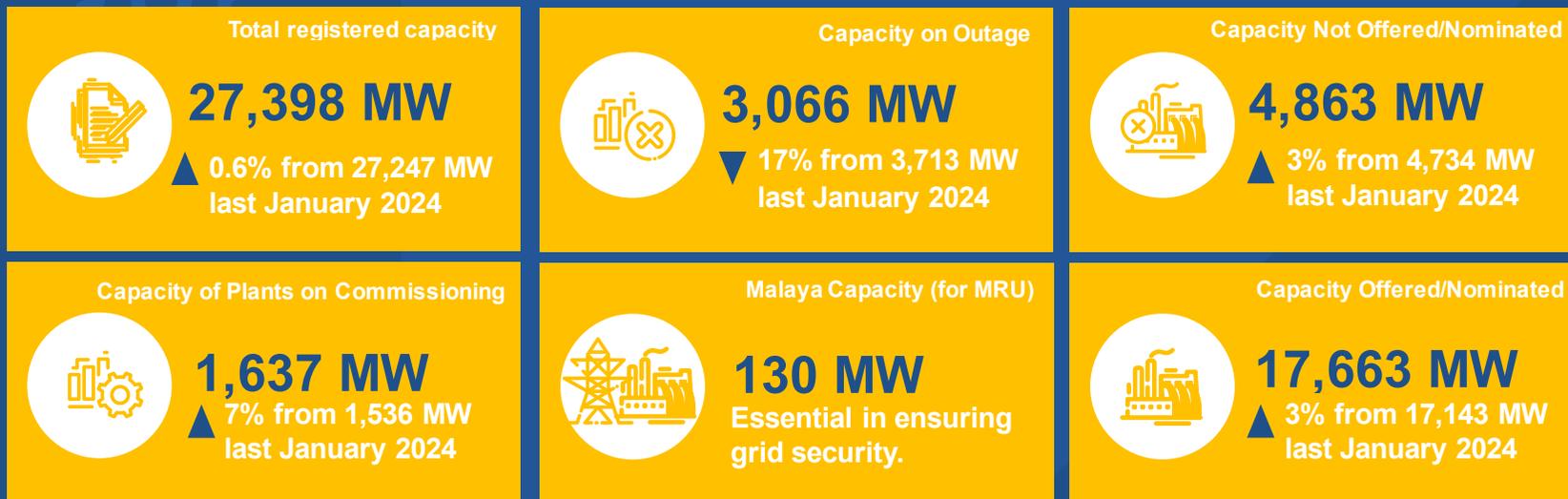
MONTHLY MARKET ASSESSMENT HIGHLIGHTS

26 January 2024 to 25 February 2024

SUMMARY OF OBSERVATIONS

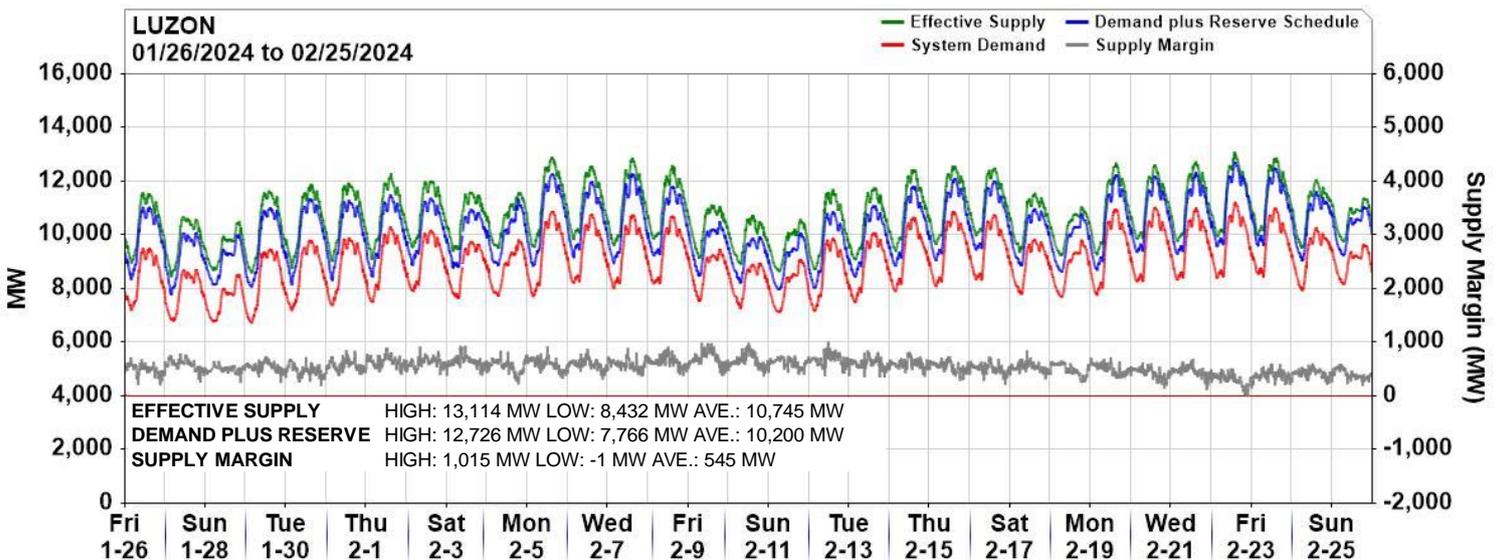
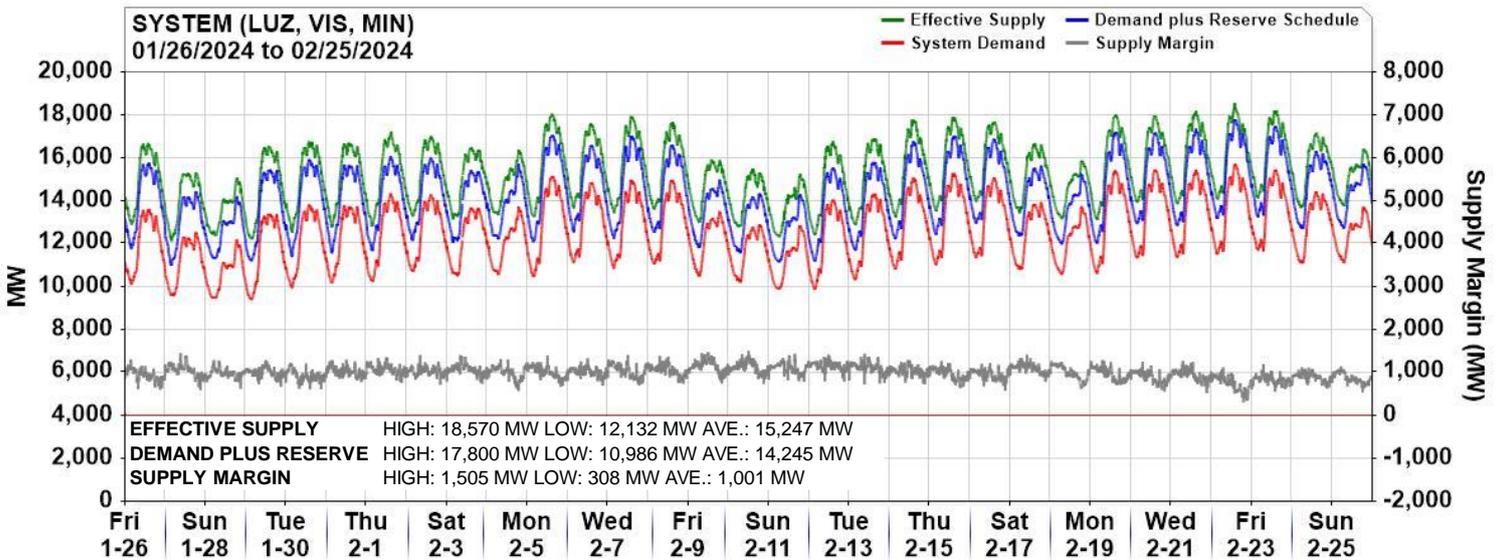
- **No Secondary Price Cap** recorded for the subject period.
- System-wide **PSM issuances** were due to the congestion of Bauang-La Trinidad Lines 1&2.
- **Market Intervention** was issued in Luzon, Visayas and Mindanao affecting 1 interval due to failure to produce RTD results.
- Notable congestion(s):
 - Samboan-Amlan line 1 (Cebu-Negros submarine cable) was congested for 440 intervals, or equivalent to 5% of the time.
 - Leyte-Cebu was congested for 467 intervals for 467 intervals

AT A GLANCE



MARKET OUTCOME

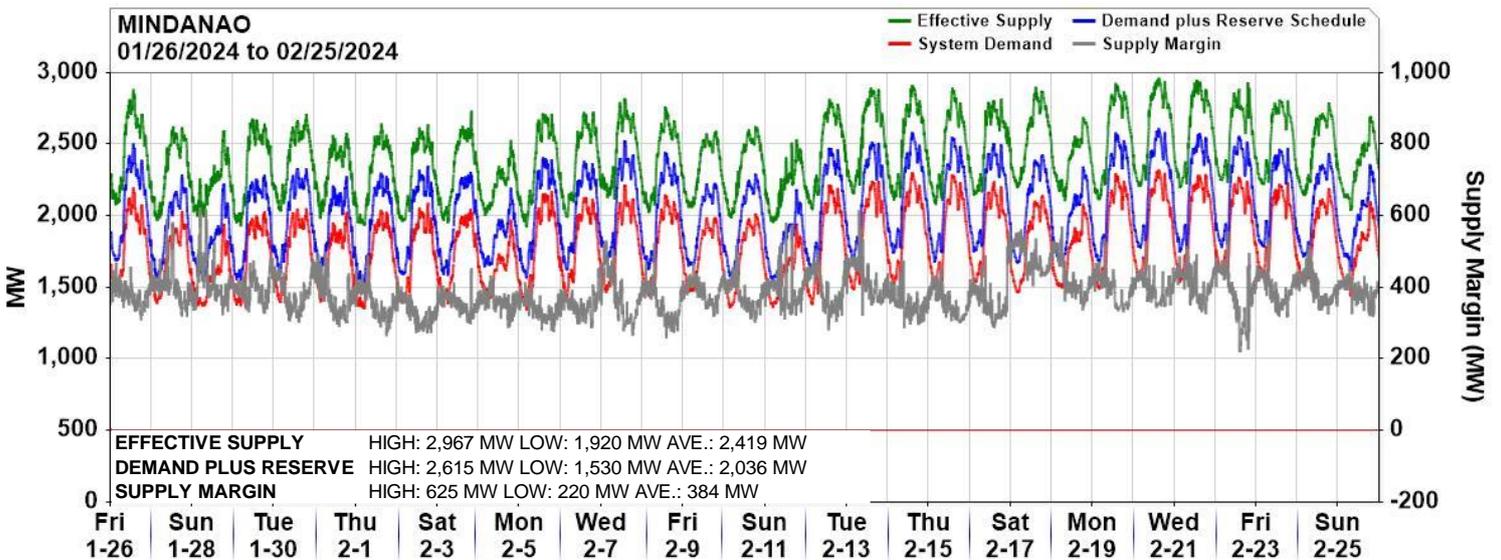
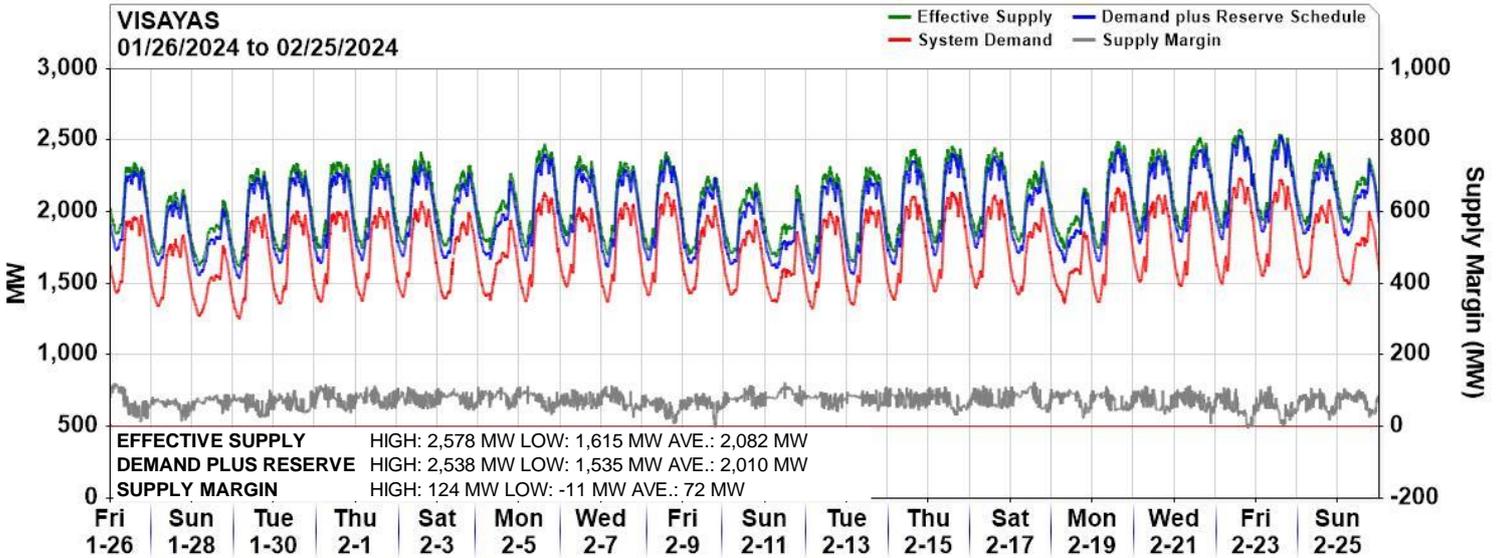
SUPPLY AND DEMAND



Notwithstanding the increase in the demand, levels of effective supply also improved due to relatively high reduction in the level of capacities on outage, which consequently led to the improvement in the levels of supply margin.

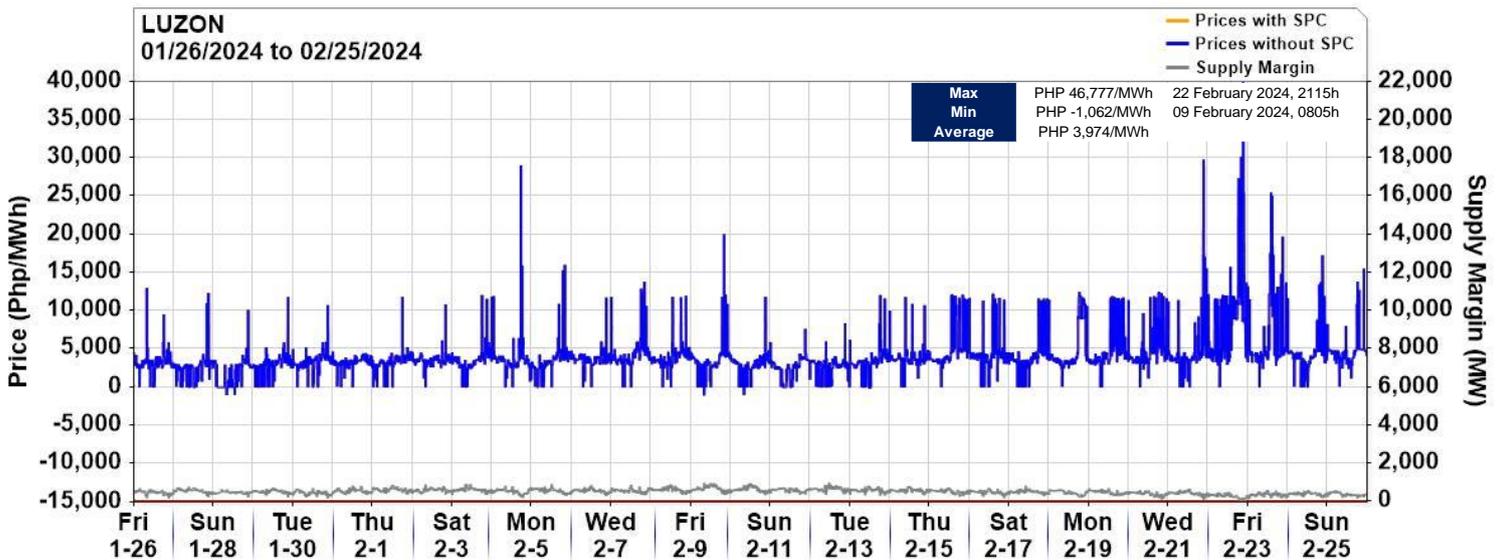
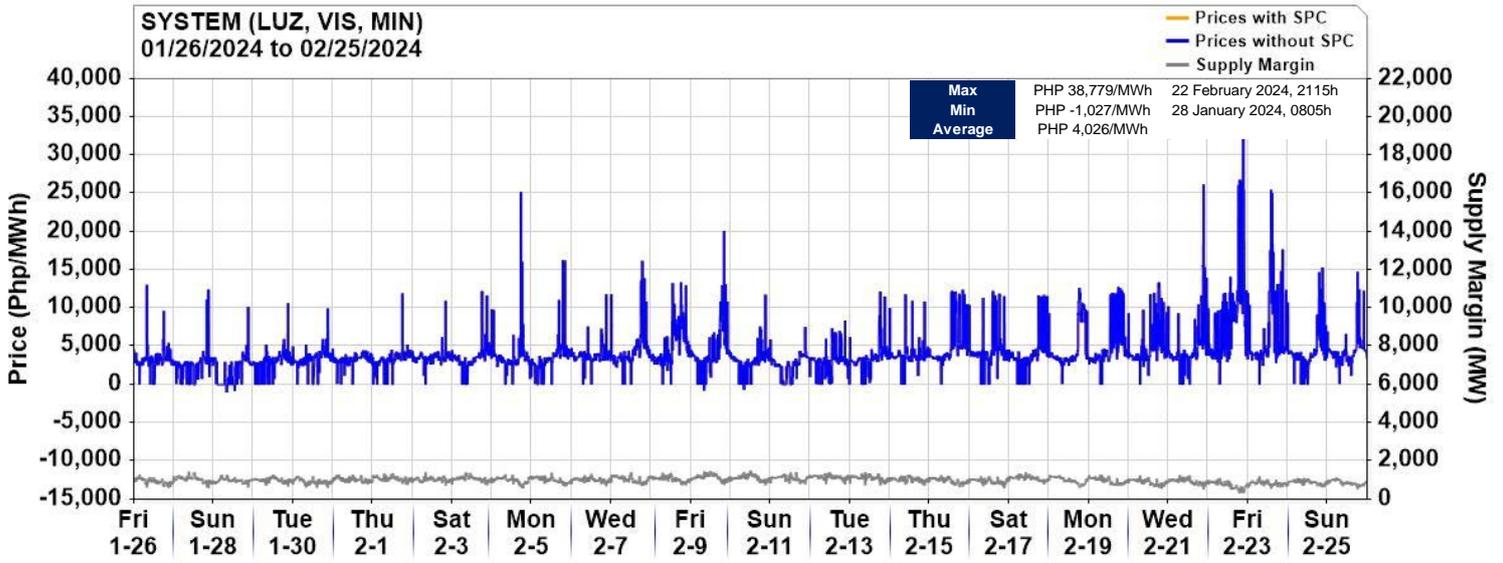
MARKET OUTCOME

SUPPLY AND DEMAND



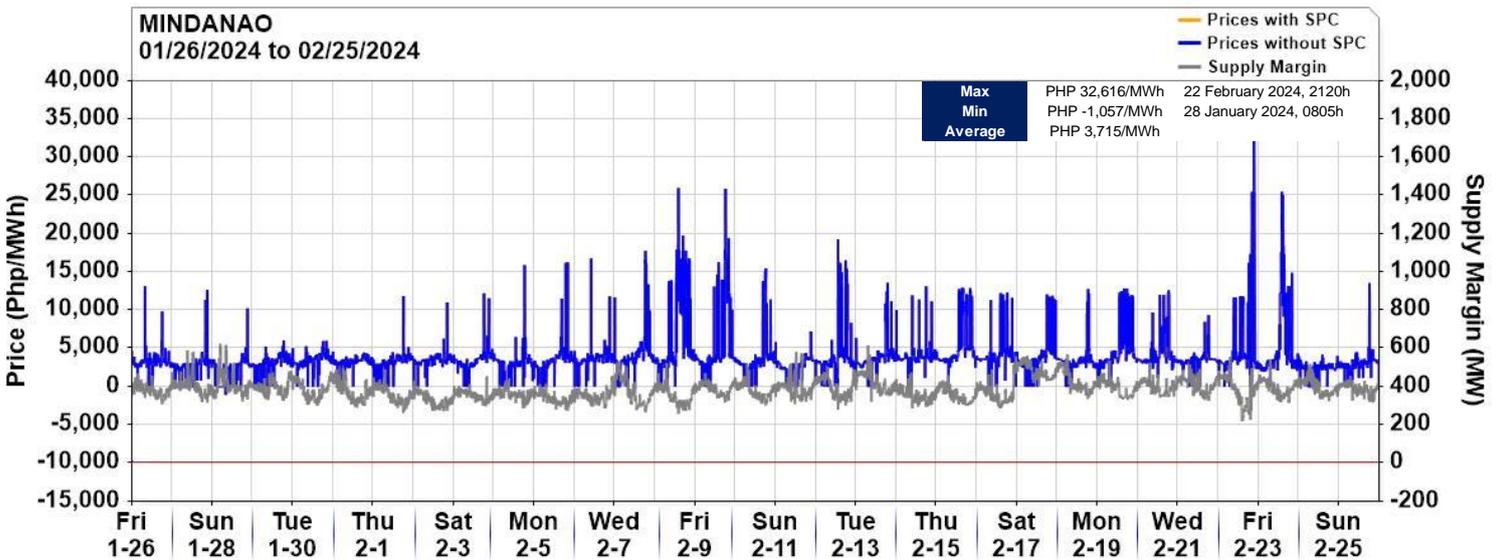
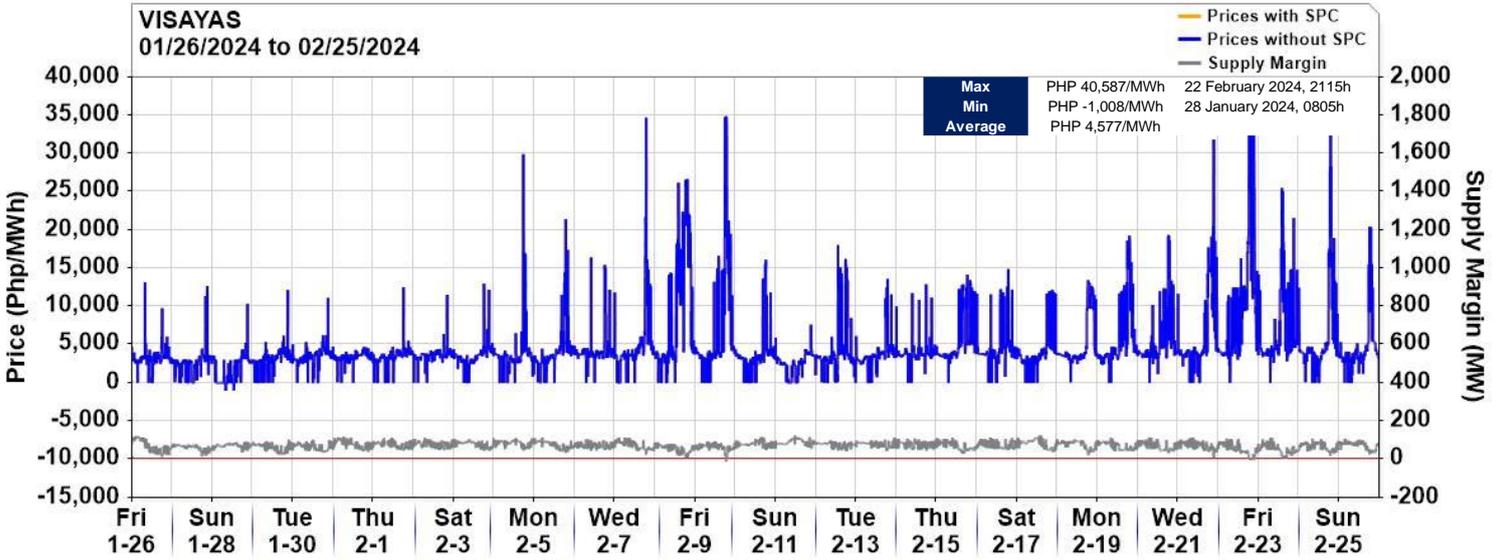
MARKET OUTCOME

MARKET PRICES



MARKET OUTCOME

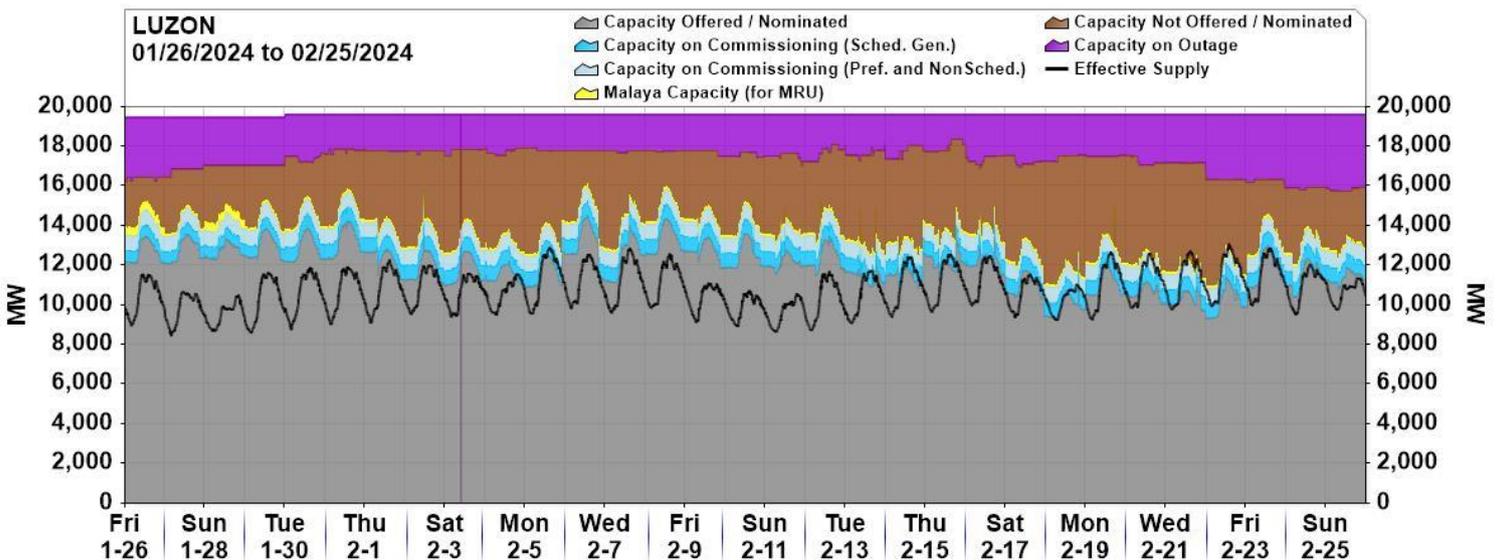
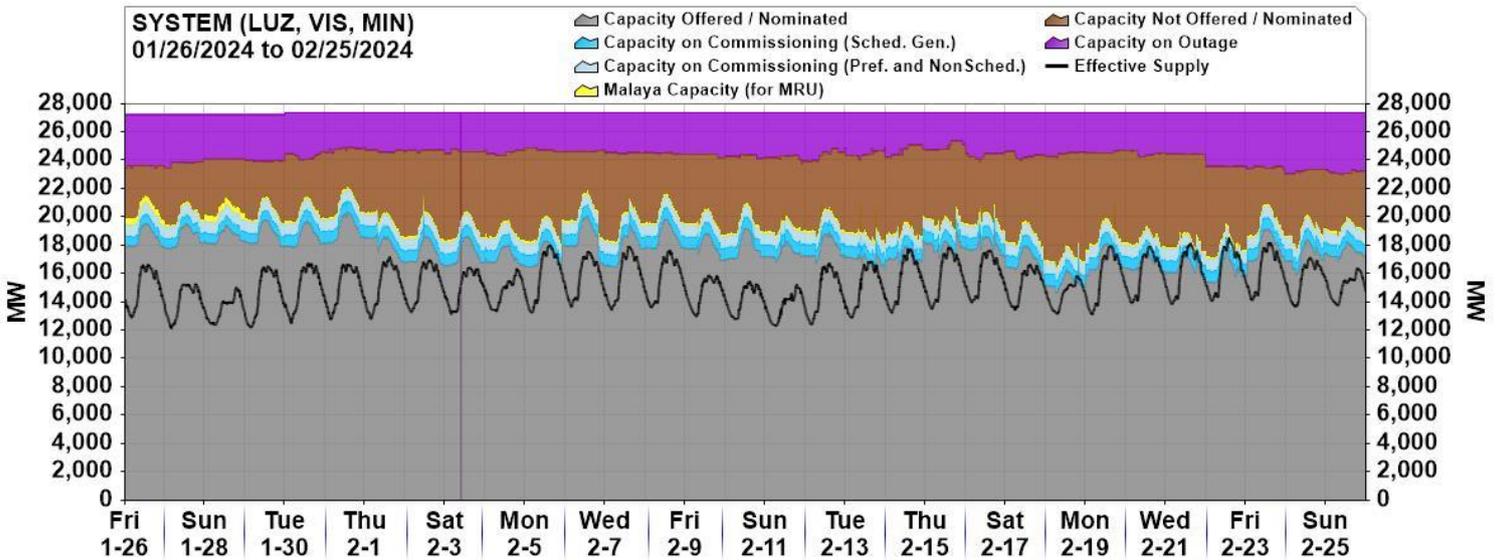
MARKET PRICES



There were noted instances of price spikes in Luzon, Visayas, and Mindanao regions, affected mainly by the availability of supply to meet the demand. Noting that average prices, system-wide and regional, were relatively lower this month compared to last month, there were no noted issuances of system-wide or regional secondary price cap. Market prices which were greater than the offer price cap were results of costs of losses and congestion due to the current system design.

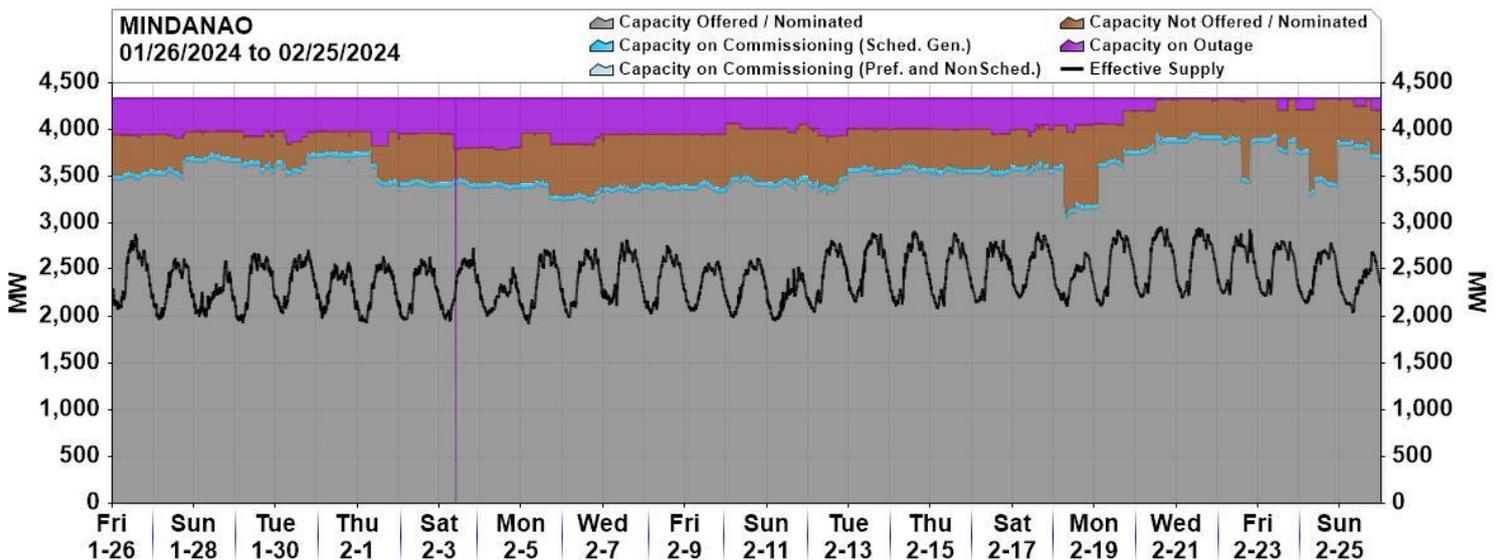
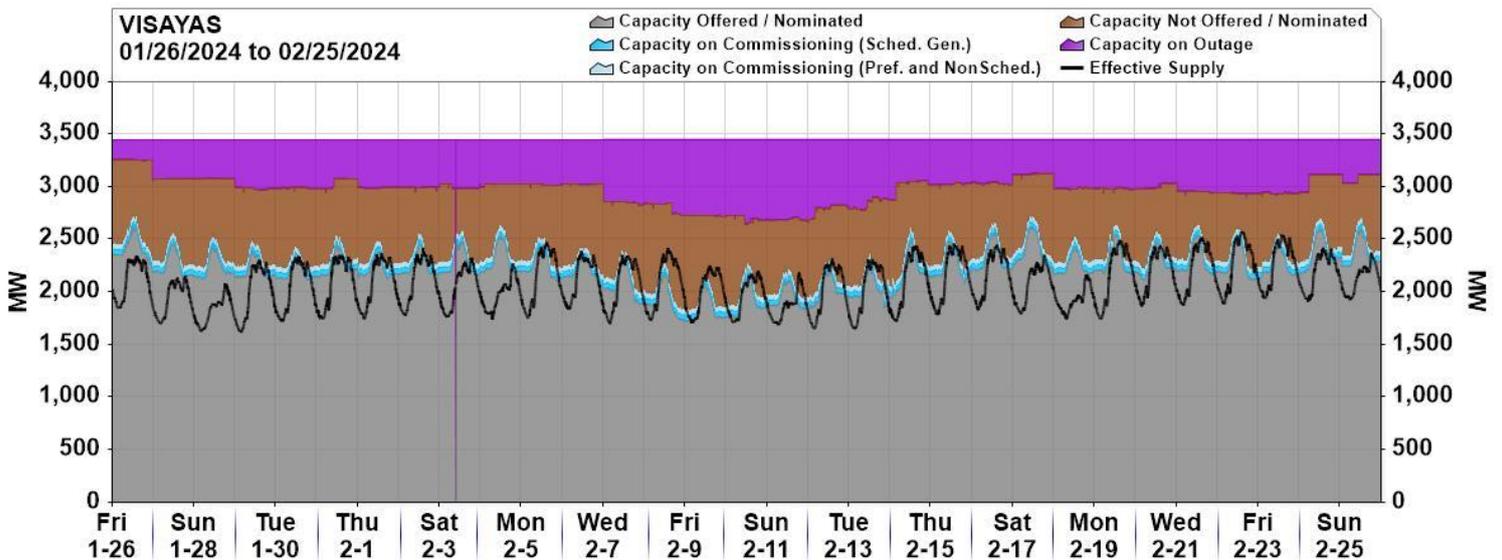
MARKET OUTCOME

CAPACITY PROFILE



MARKET OUTCOME

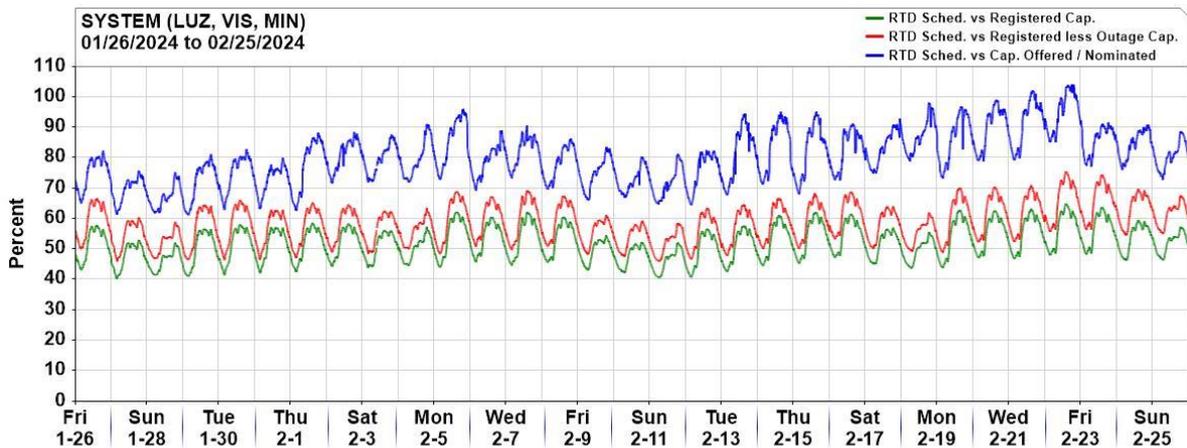
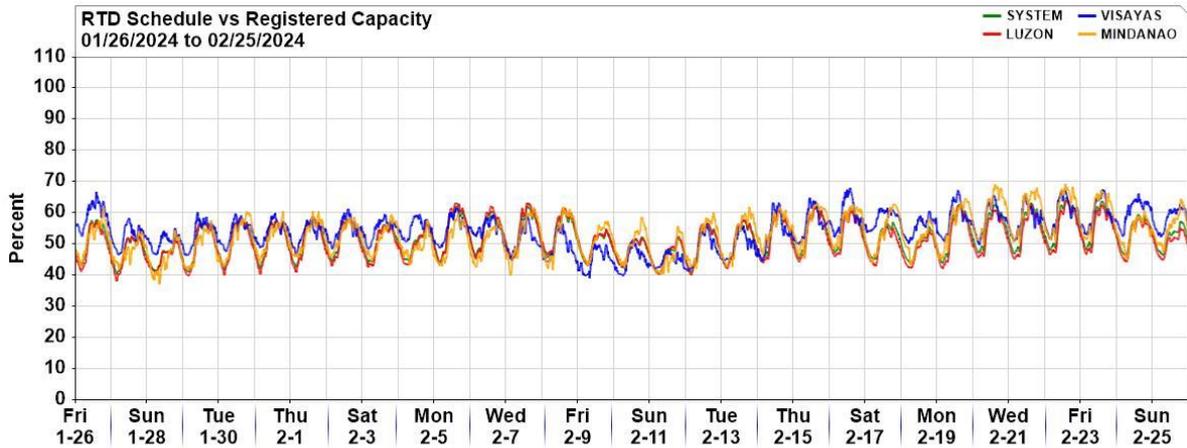
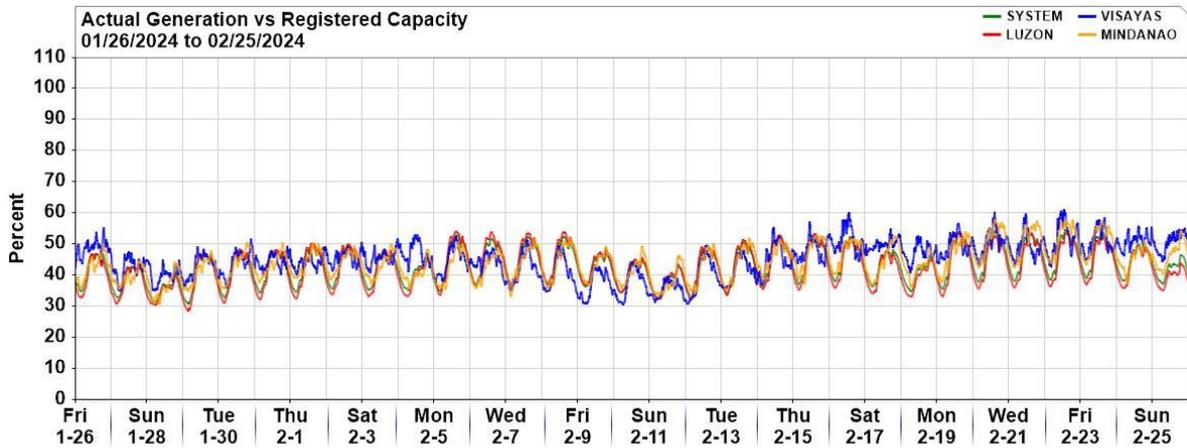
CAPACITY PROFILE



A total system registered capacity of 27,397.8 MW was noted during the billing period in review. Of the total registered capacity, 4,863 MW was under the Capacities Not Offered/Nominated which were mostly attributable to resource constraints and subject to further validation with the Enforcement and Compliance Office of PEMC.

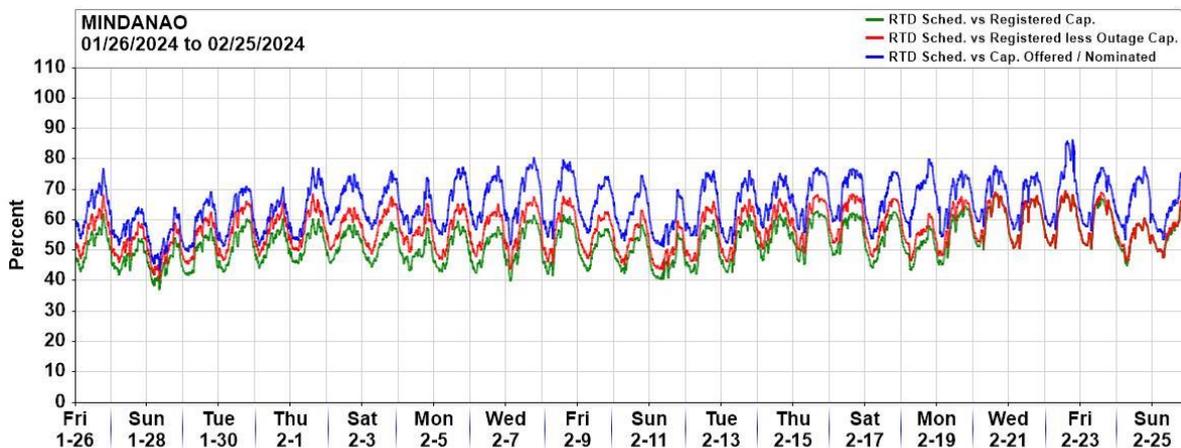
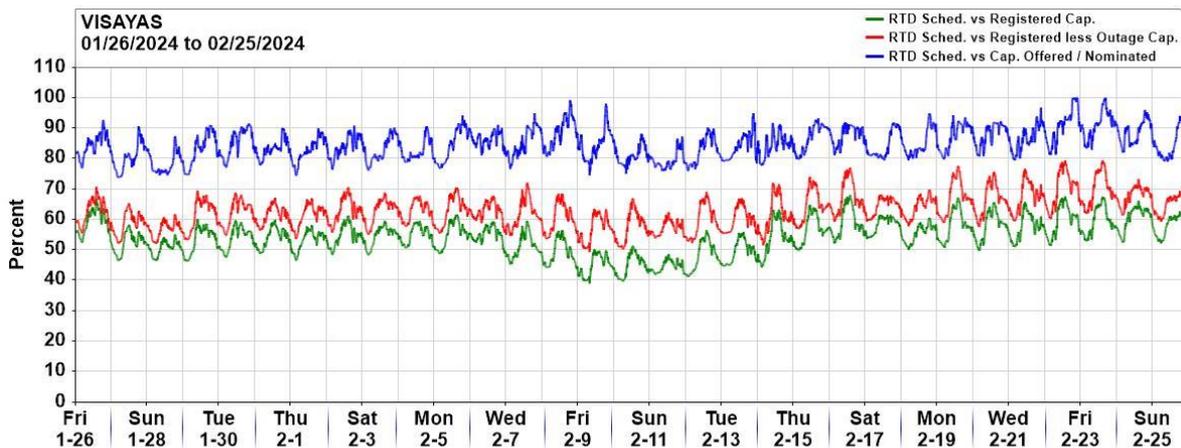
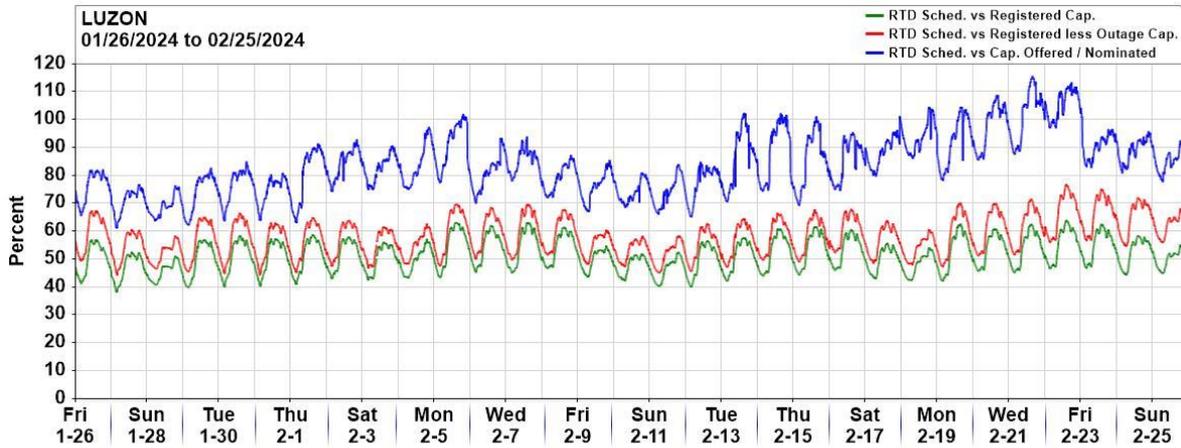
MARKET OUTCOME

CAPACITY FACTOR



MARKET OUTCOME

CAPACITY FACTOR

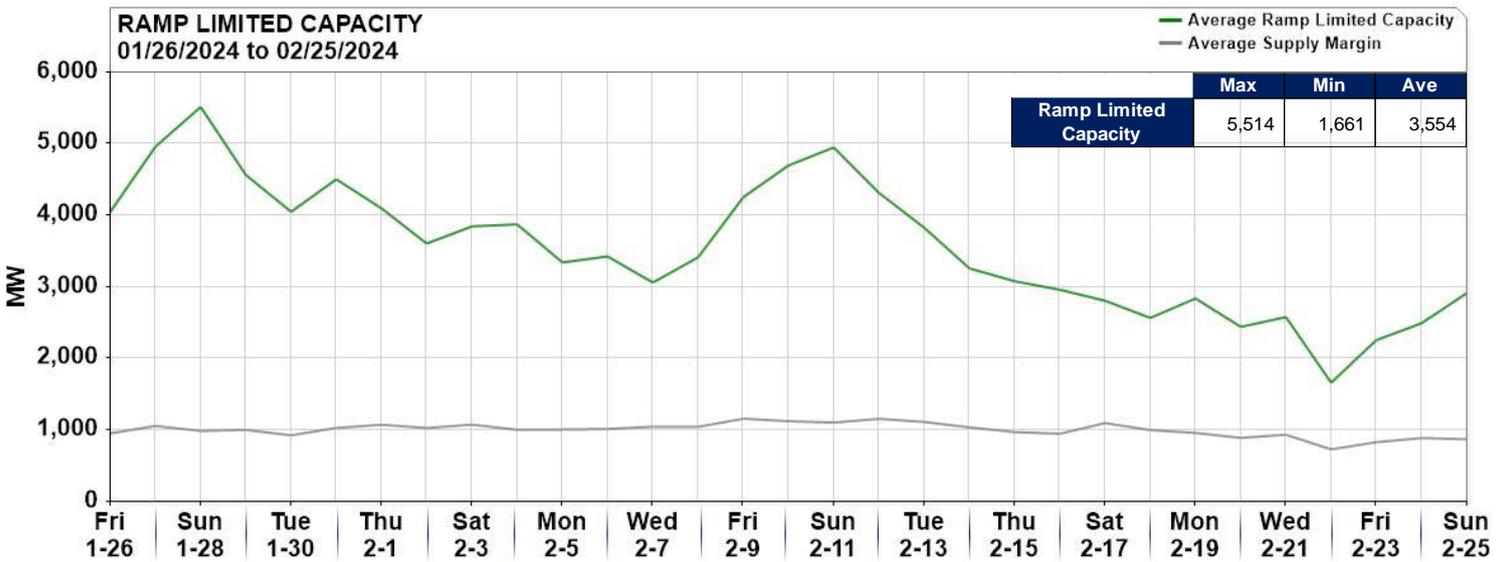


The capacity factors (Actual Generation vs Registered Capacity) for the system and each region were recorded only at an average of 50.2%. While Luzon and Visayas were highly affected by the capacities on outage and unavailability of the generators, the low capacity factor in Mindanao resulted from the ample, if not, oversupply in the region, notwithstanding the region's export to Visayas.

MARKET OUTCOME

GENERATOR RAMPING

RAMP LIMITED CAPACITY

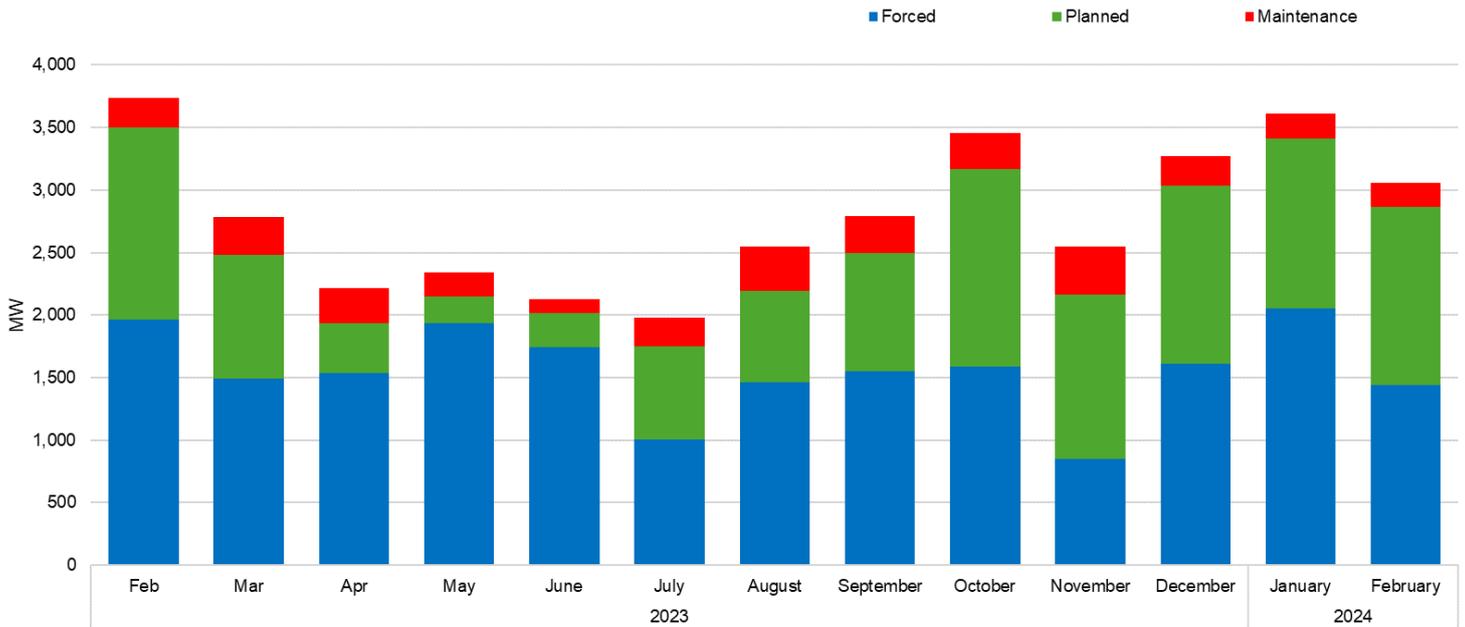


The average Ramp Limited capacity was observed to increase by an average of 1.5%, from an average of 3,503 MW last month despite the relatively lower level of capacities on outage during the period.

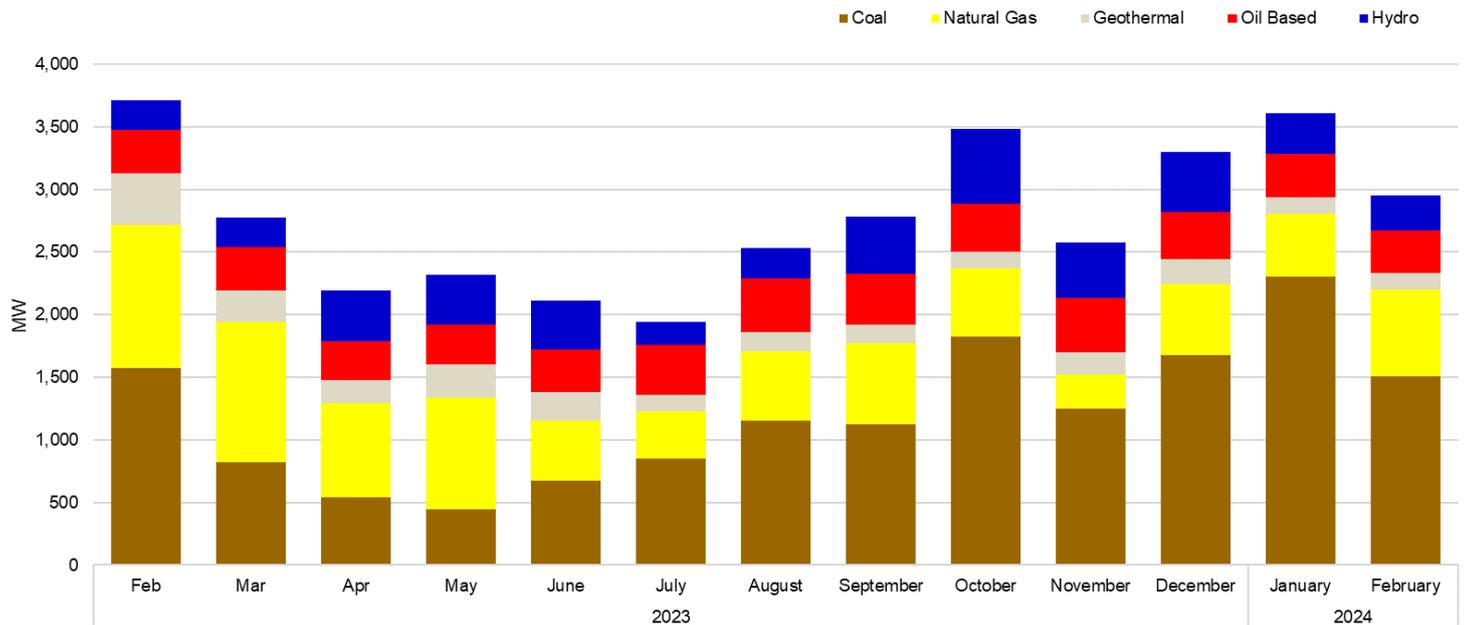
MARKET OUTCOME

OUTAGES

CAPACITY ON OUTAGE BY CATEGORY

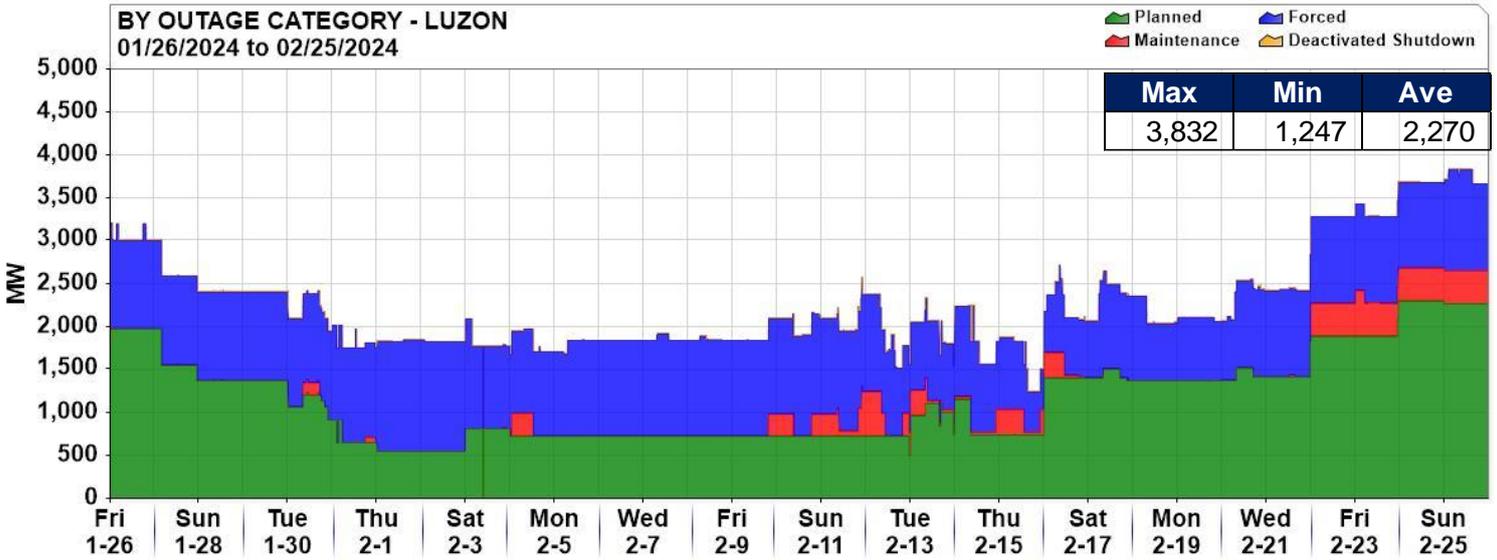
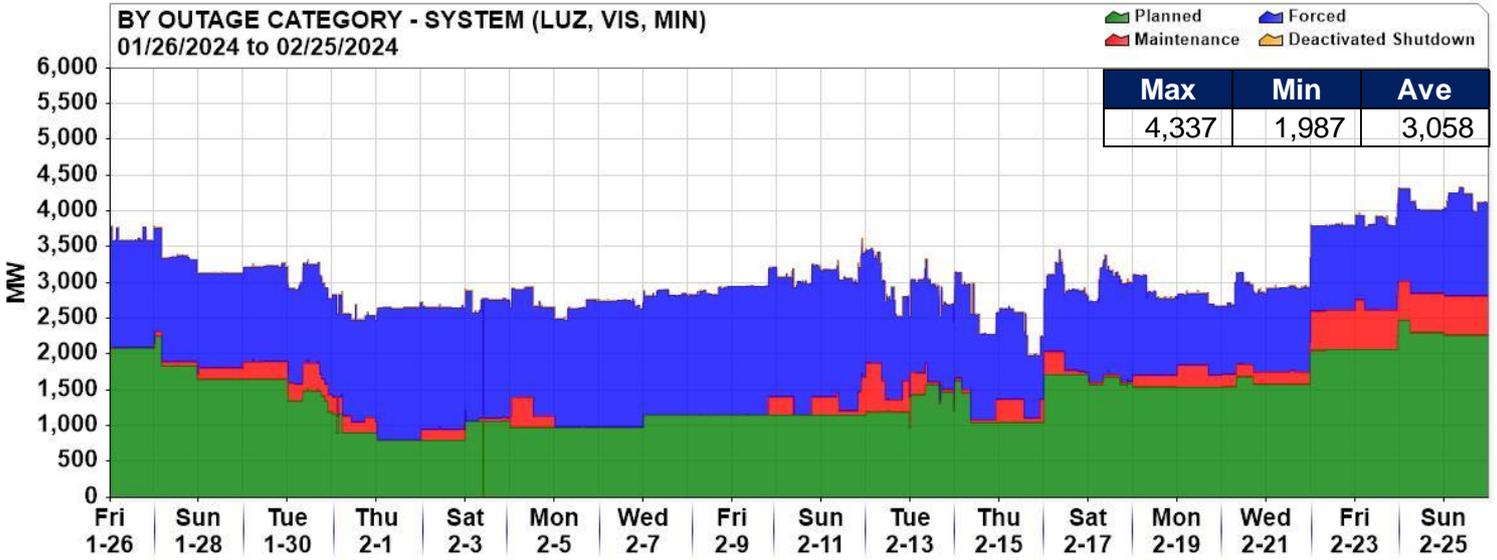


CAPACITY ON OUTAGE BY PLANT TYPE



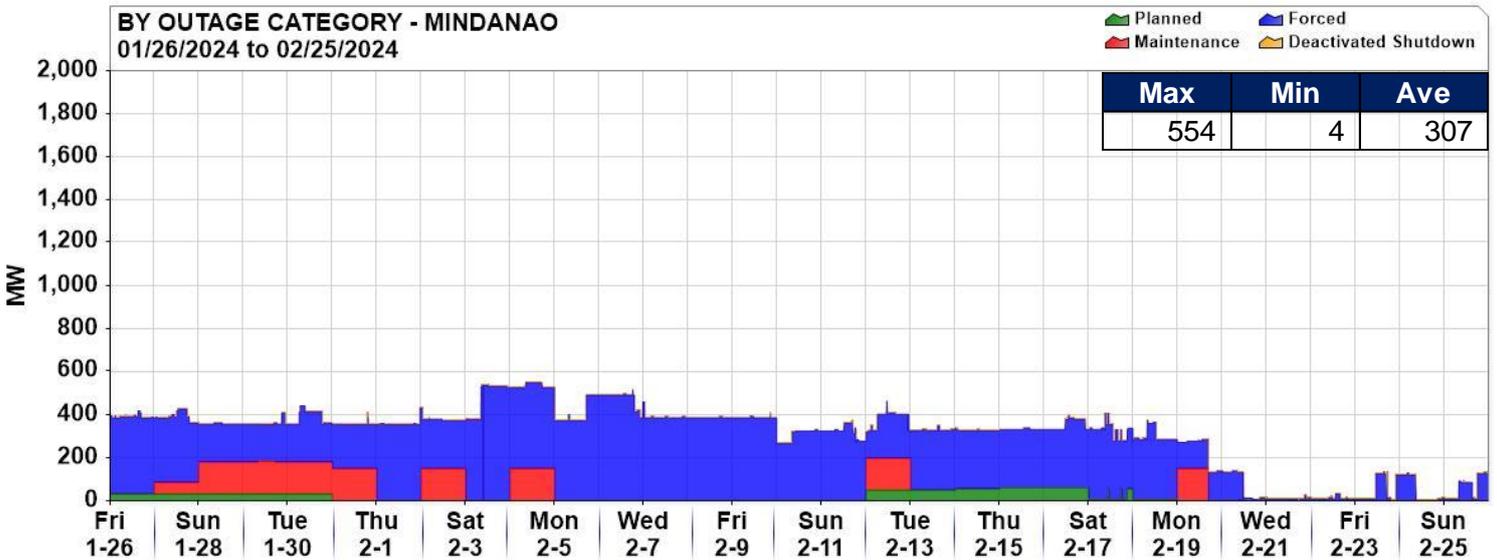
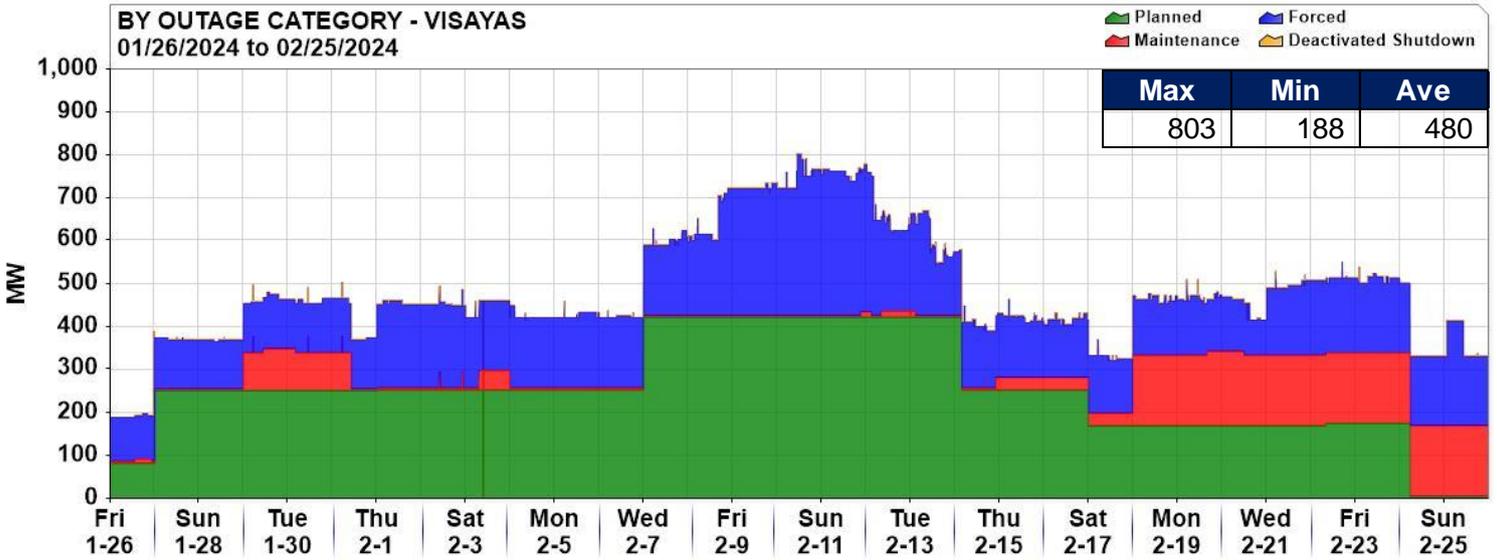
MARKET OUTCOME

OUTAGES



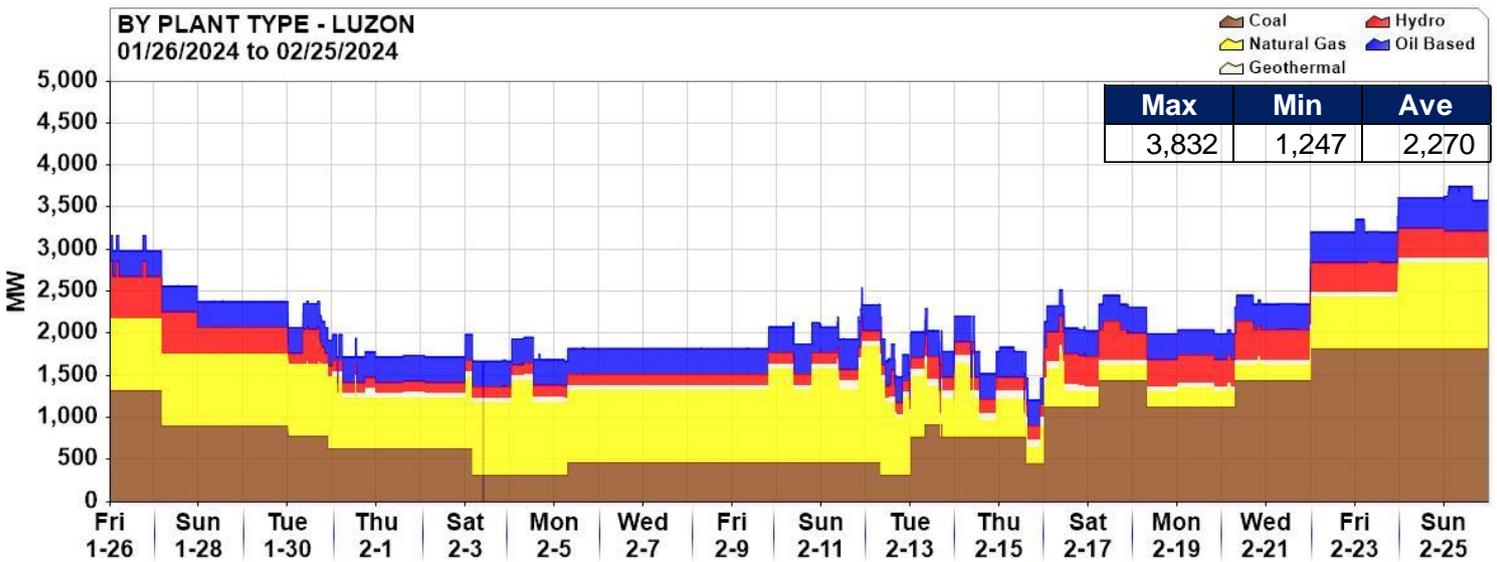
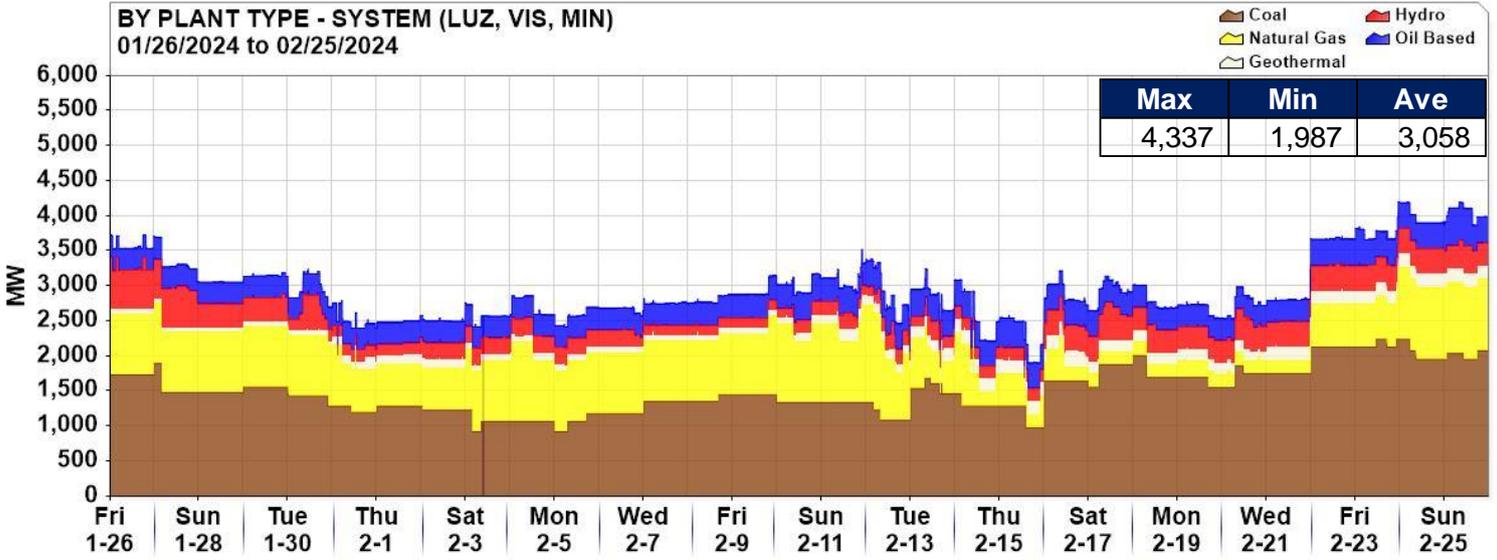
MARKET OUTCOME

OUTAGES



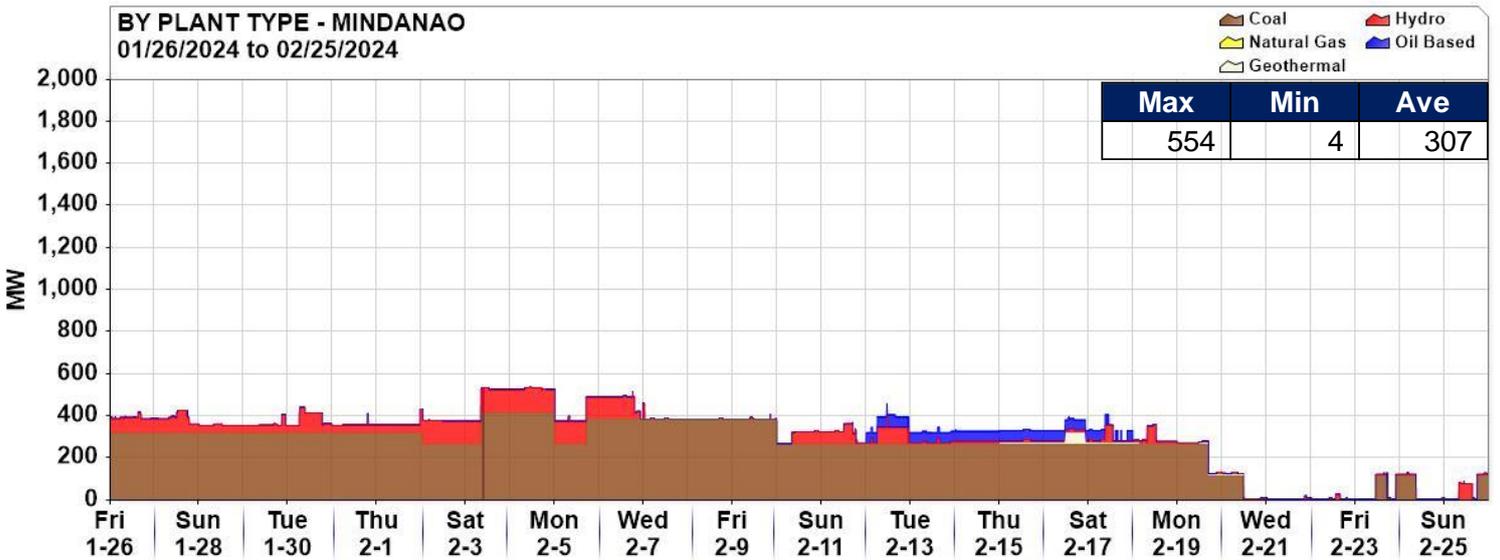
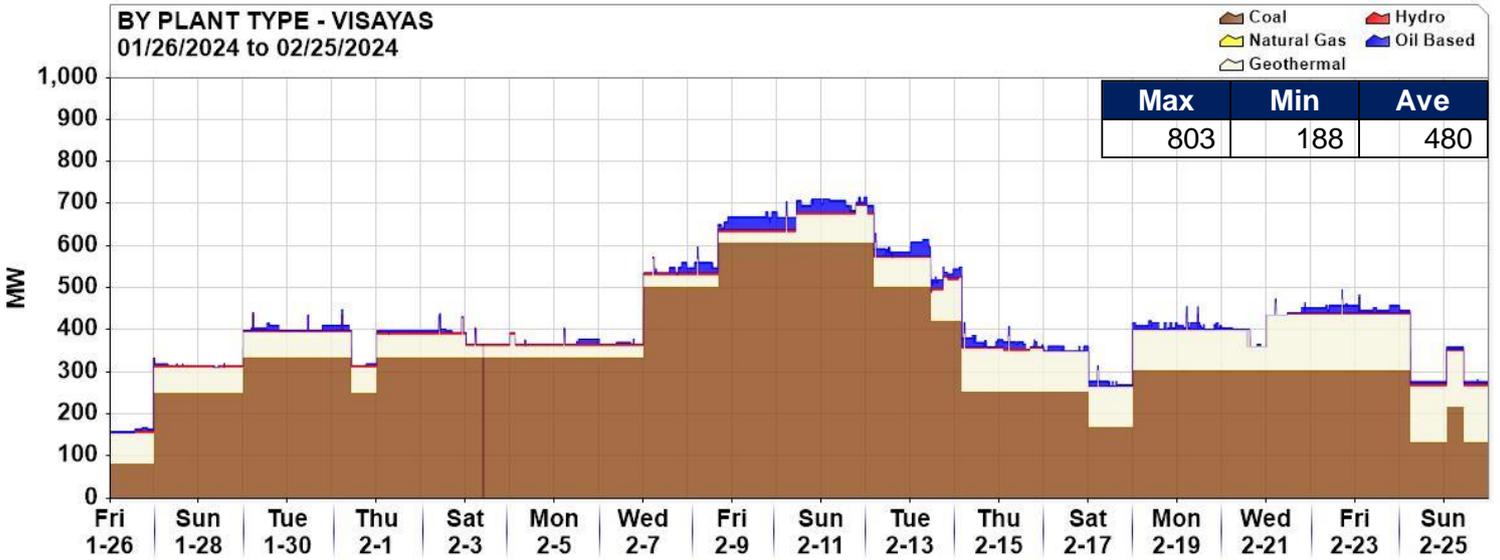
MARKET OUTCOME

OUTAGES



MARKET OUTCOME

OUTAGES



Most of the plants that were on outage were Coal and Natural Gas for system-wide monitoring. These plant outages fall under forced and planned outage categories.

MARKET OUTCOME

REGISTERED CAPACITY

Plant Type	January 2024				February 2024			
	System	Luzon	Visayas	Mindanao	System	Luzon	Visayas	Mindanao
	Capacity (MW)				Capacity (MW)			
BAT	495	315	100	80	495	315	100	80
BIOF	425	182	191	52	425	182	191	52
COAL	12,227	8,637	1,324	2,266	12,378	8,787	1,326	2,266
GEO	1,738	783	850	105	1,738	783	850	105
HYD	3,739	2,571	53	1,115	3,739	2,571	53	1,115
NATG	3,286	3,286			3,286	3,286		
OIL	2,825	1,741	433	651	2,825	1,741	433	651
SOLR	2,008	1,533	408	67	2,008	1,533	408	67
WIND	507	416	91		507	416	91	
TOTAL	27,247	19,461	3,451	4,335	27,398	19,611	3,452	4,335

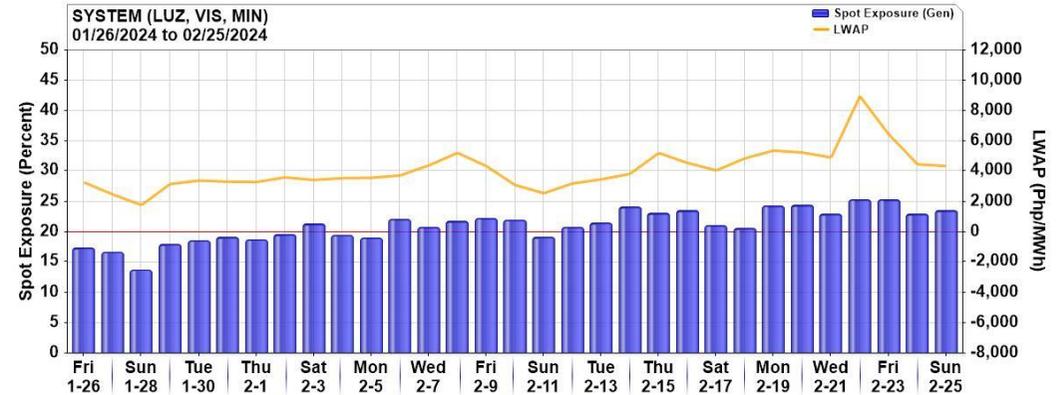
MARKET OUTCOME

SPOT EXPOSURE

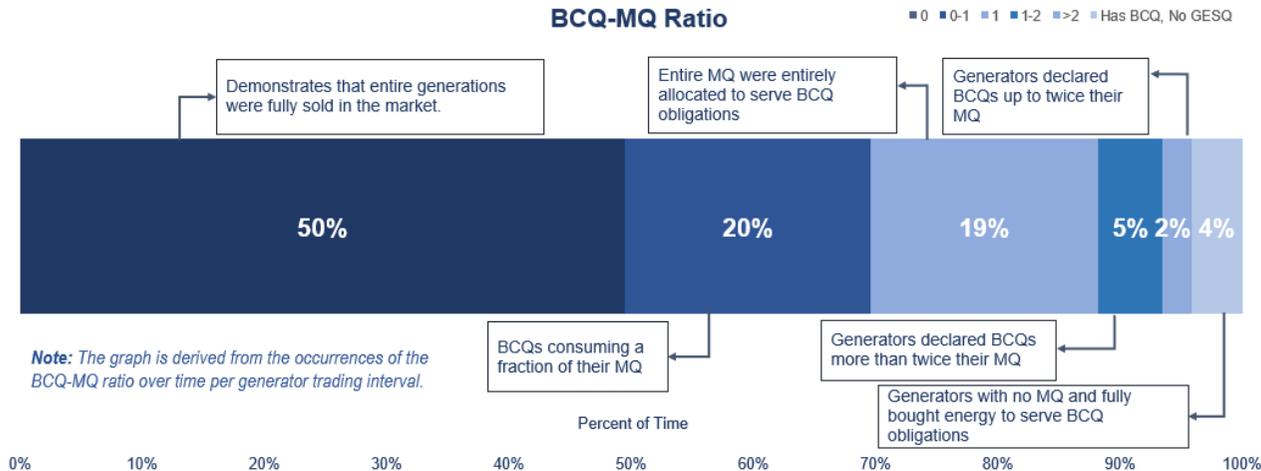
HOURLY SPOT



DAILY SPOT



BCQ-MQ Ratio

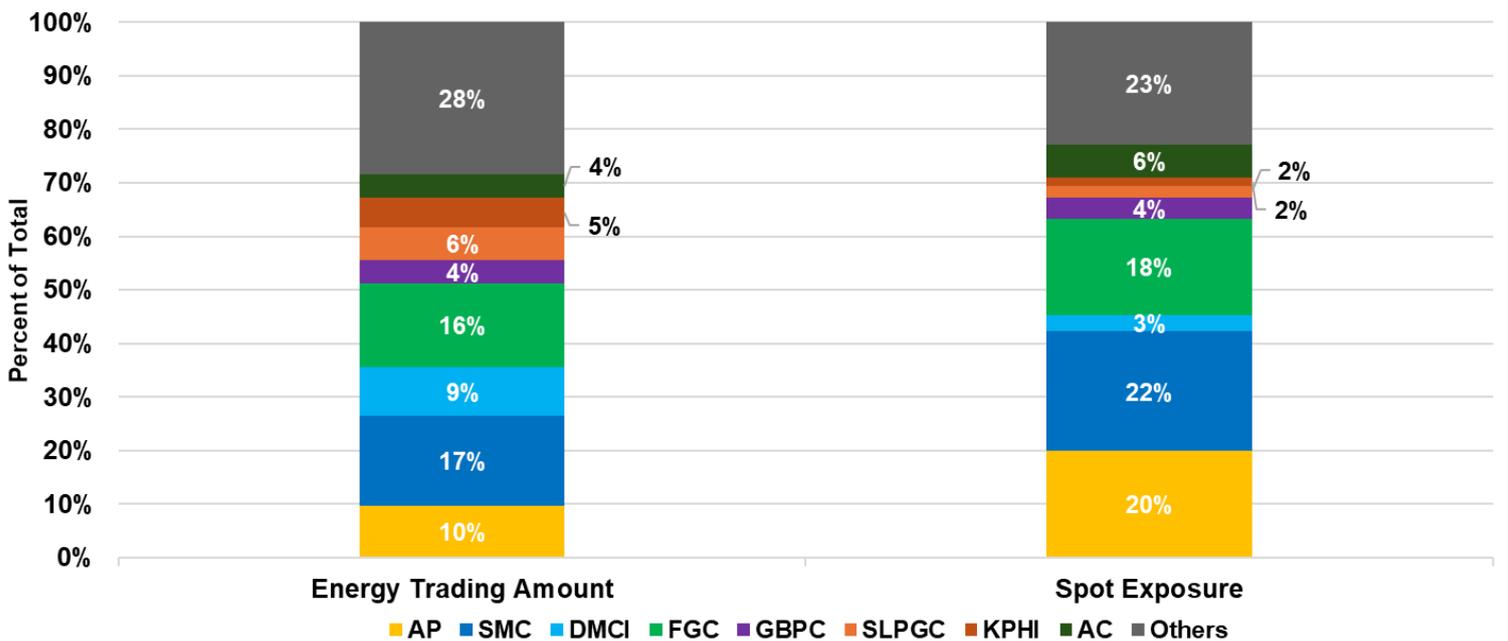
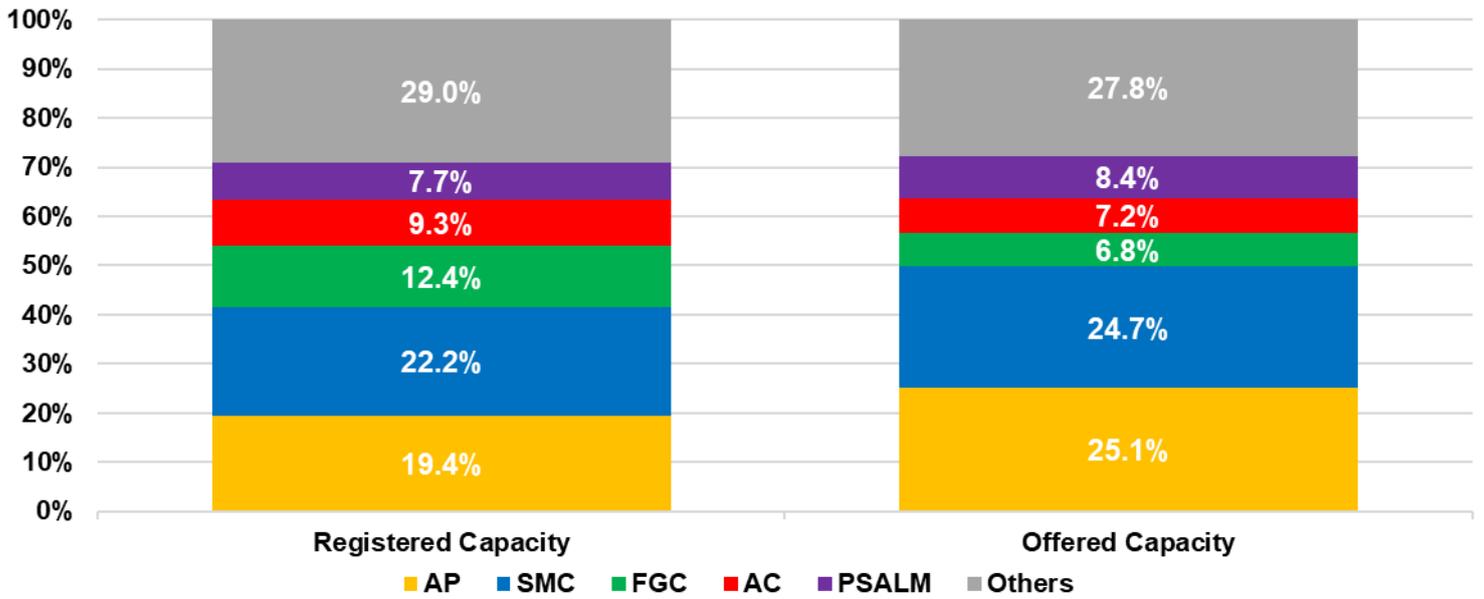


Total spot quantities of generator participants in the February 2024 billing period were at an average of 21% with an average price of PHP3,987/MWh during off-peak hours while during peak hours, the average exposure was at 21.4% with an average price of PHP5,624/MWh. In addition, spot exposures during weekdays averaged at 21.4% with an average price of PHP4,857/MWh while it was at an average of 21.4% during weekends with an average price of PHP4,759/MWh.

MARKET OUTCOME

STRUCTURAL COMPETITION

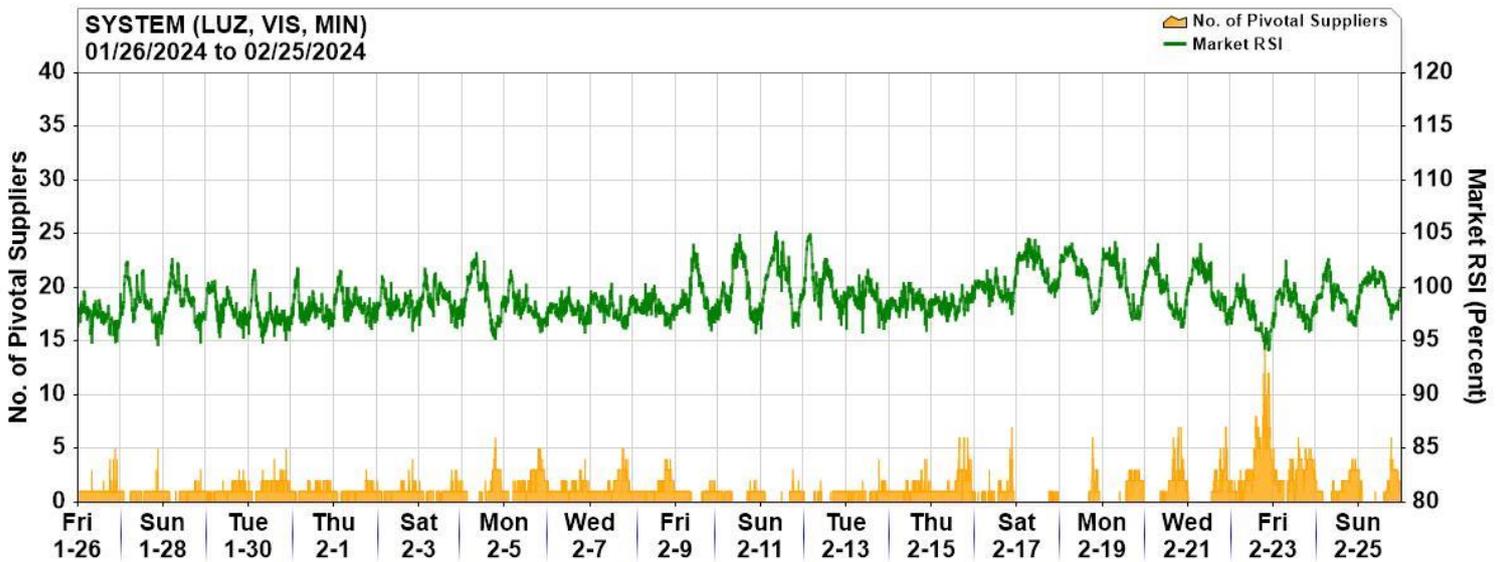
SYSTEM MARKET SHARES



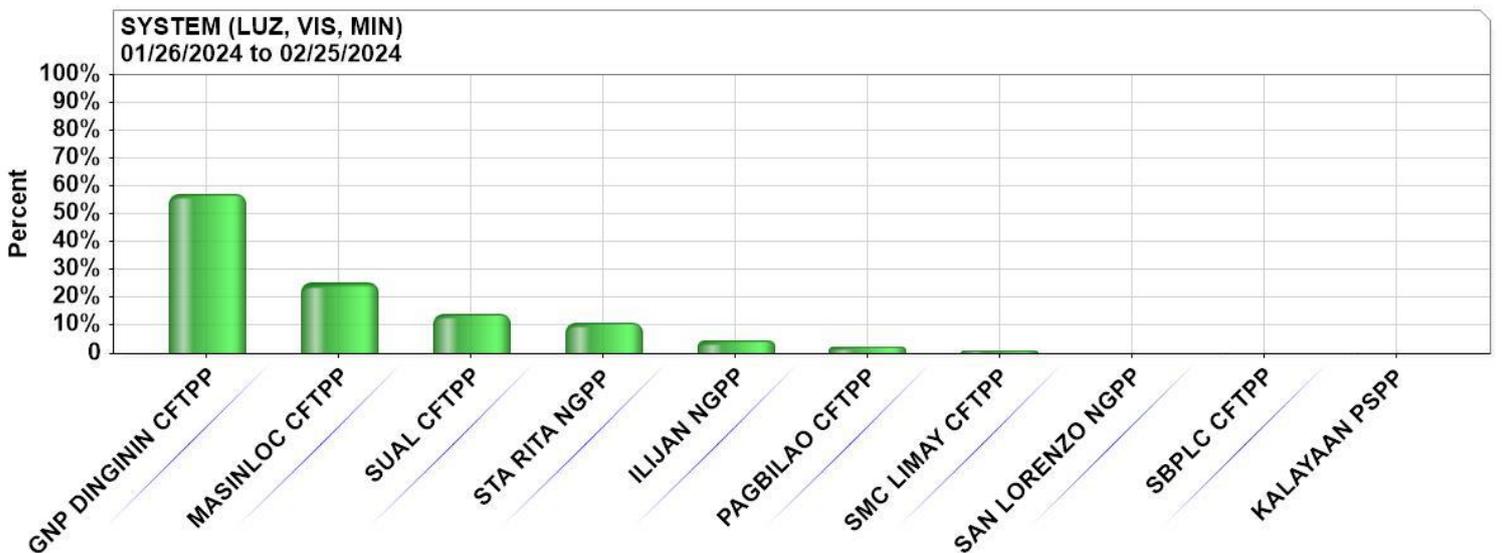
MARKET OUTCOME

STRUCTURAL COMPETITION

SYSTEM RSI



SYSTEM PIVOTAL SUPPLIERS

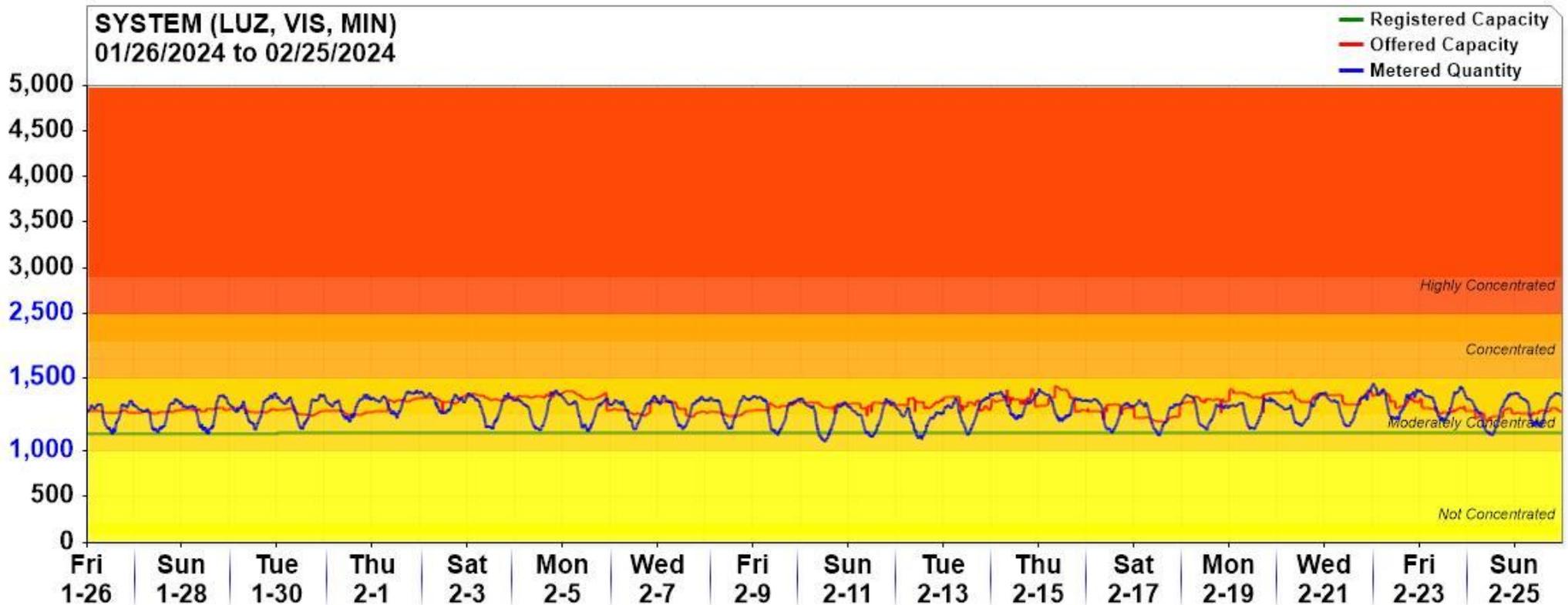


The market Residual Supply Index (RSI) was below the 100% mark for about 89.7%, signifying the presence of pivotal plants in Luzon, Visayas, and Mindanao.

MARKET OUTCOME

STRUCTURAL INDICES

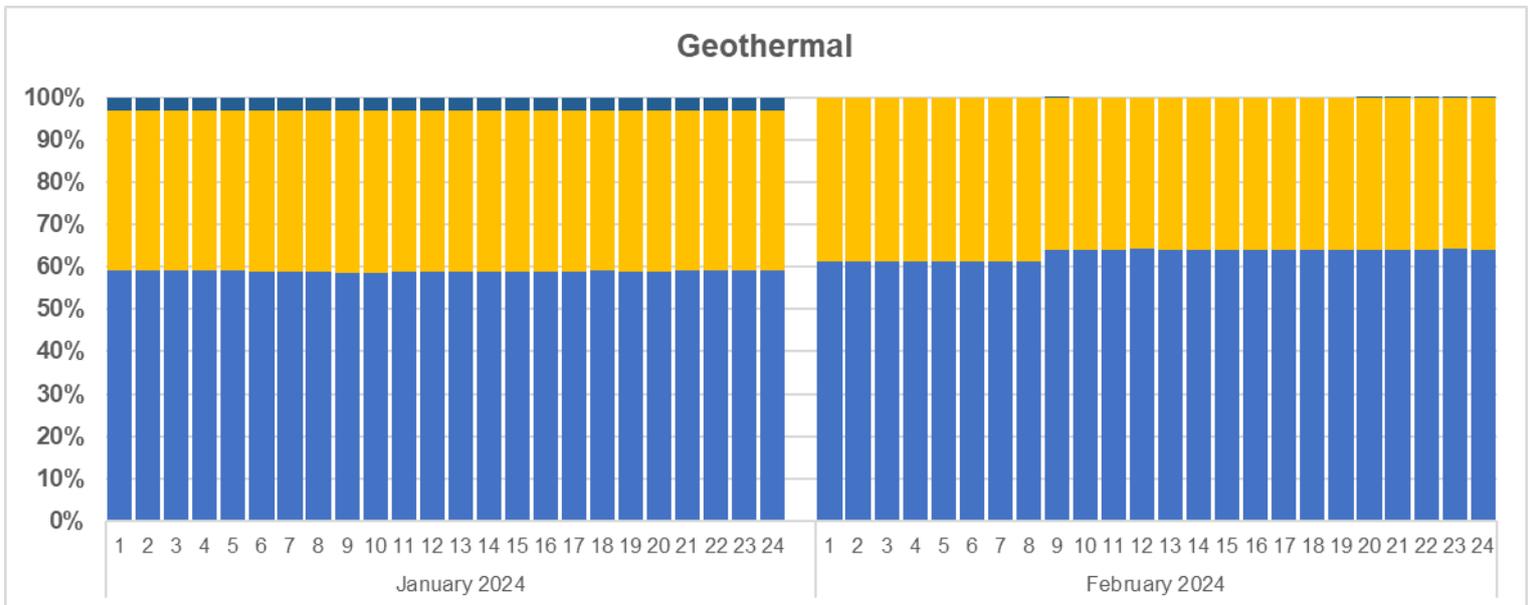
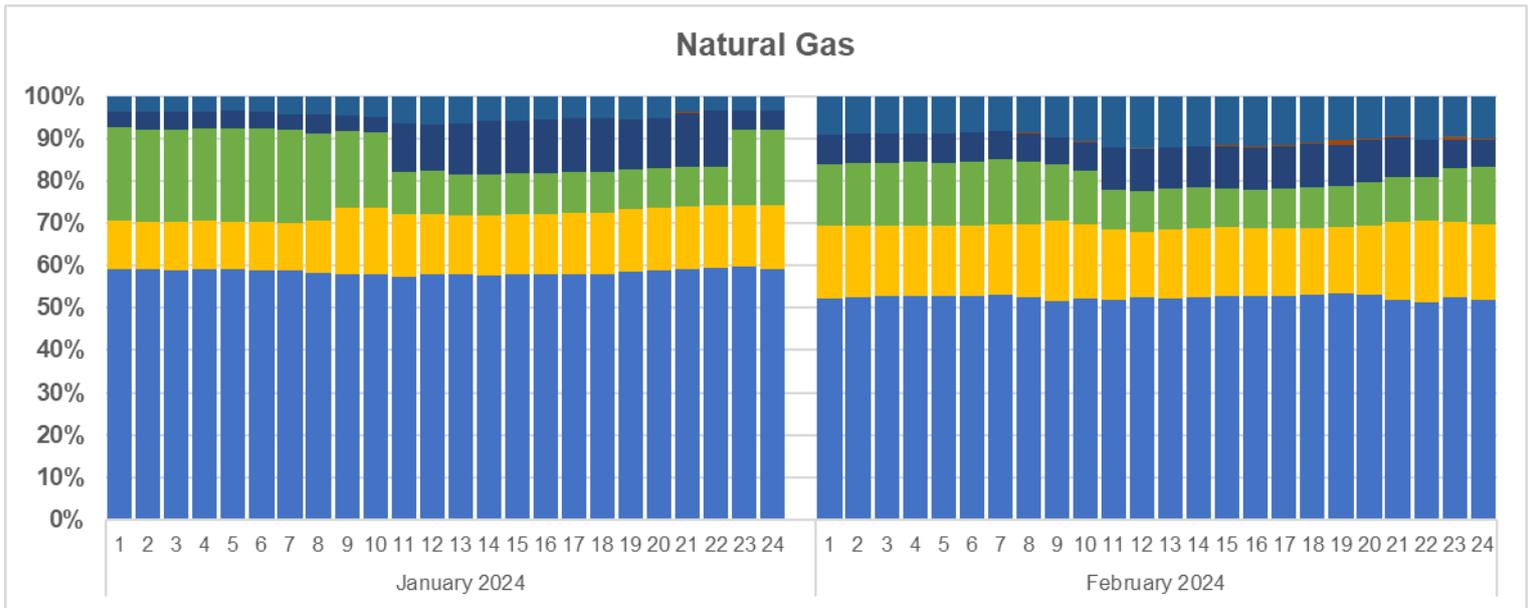
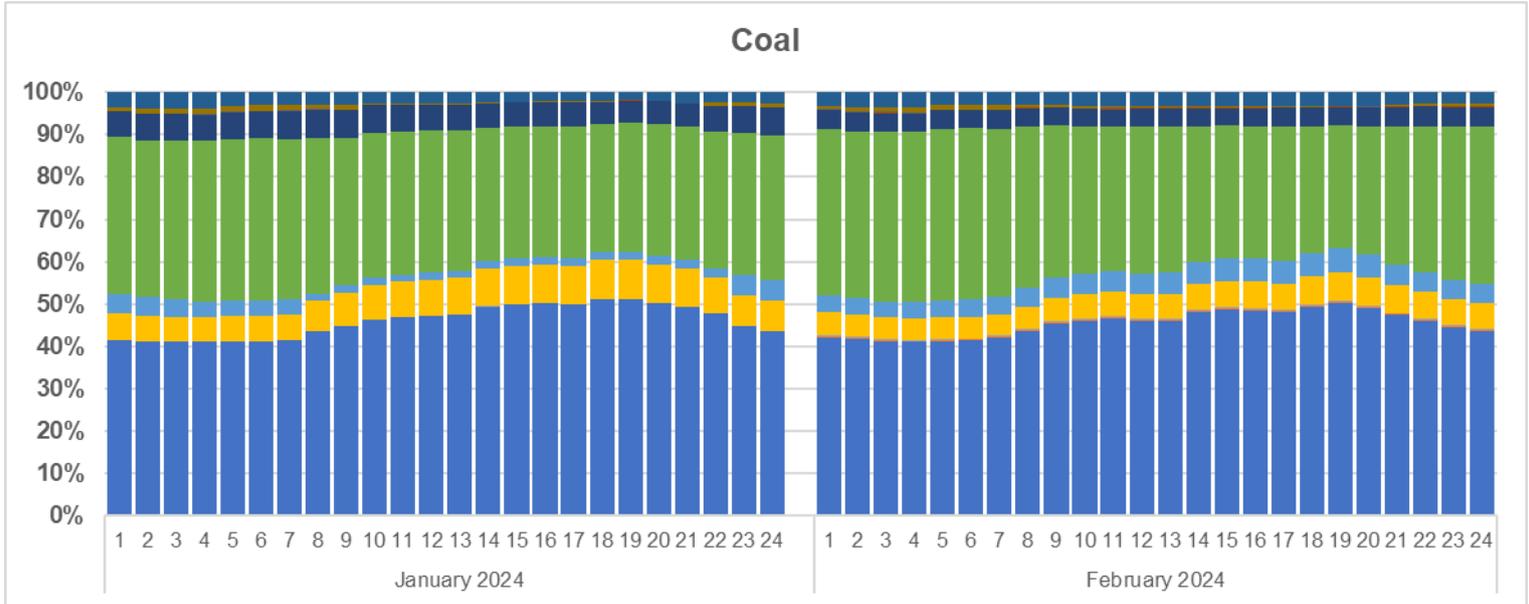
SYSTEM HHI



The **Herfindahl-Hirschman Index (HHI) by major participant grouping** for the February 2024 billing period posted a moderately concentrated market for all measures (Registered Capacity, Offered Capacity and Actual Generation).

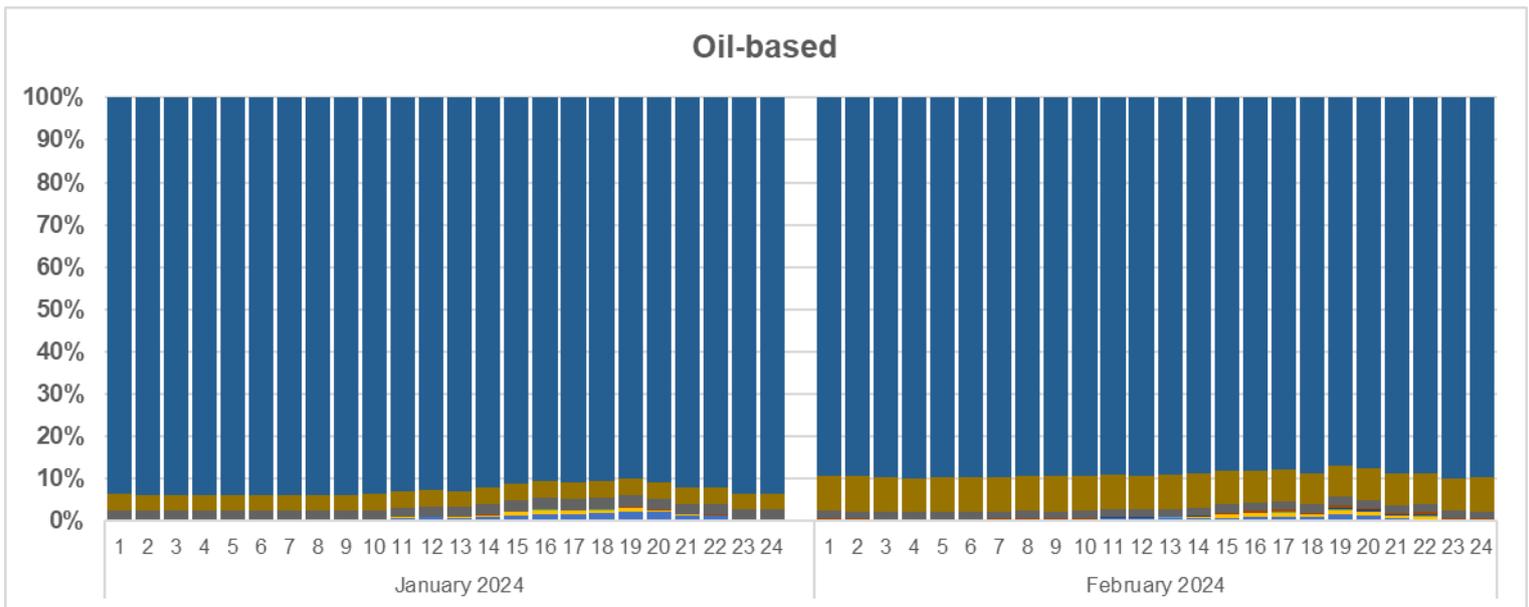
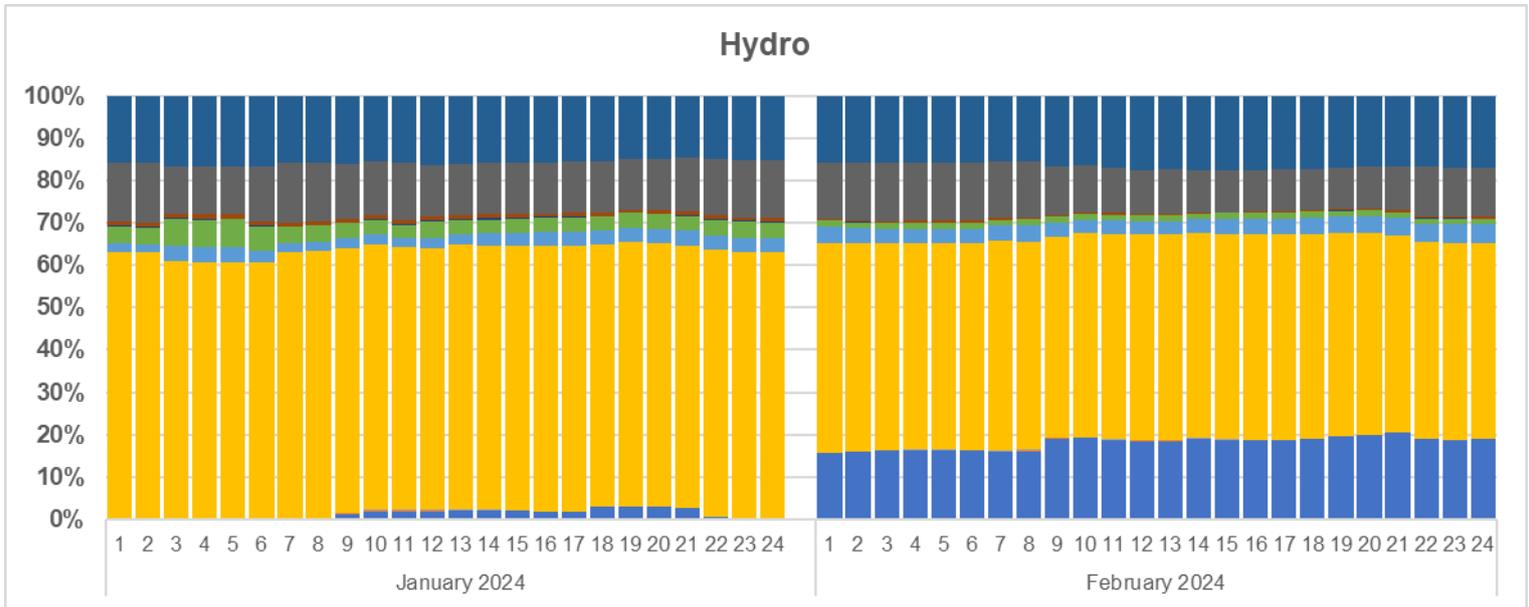
MARKET OUTCOME

BEHAVIORAL INDICES



MARKET OUTCOME

BEHAVIORAL INDICES



- -10,000 to -7,500
- -7,500 to -5,000
- -5,000 to -2,500
- -2,500 to 0
- 0 to 2,500
- 2,500 to 5,000
- 5,000 to 7,500
- 7,500 to 10,000
- 10,000 to 12,500
- 12,500 to 15,000
- 15,000 above

Coal and Hydro power plants posted the highest decrease in offered prices, which contributed to the decrease in the market prices during the period.

ANNEX

List of Major Plant Outages

Plant Type	Plant/ Unit Name	Capacity (MW)	Date Out	Date In	Duration (Days)	Outage Type	Remarks
Luzon							
BIOF	G2REC	10.8	02/14/2024 7:01	02/24/2024 11:01	10	Forced Outage	Affected by the oil leak at transformer.
BIOF	IPower 2	10.8	02/11/2024 21:00	02/18/2024 9:31	7	Forced Outage	Turbine trouble
BIOF	GFII	15.8	02/11/2024 18:00	02/13/2024 18:40	2	Forced Outage	Unplanned outage due to insufficient fuel.
BIOF	CLEANG 1	10.8	01/17/2024 17:02	02/01/2024 8:04	15	Forced Outage	Emergency shutdown due to high vibration of ID fan
COAL	SMC 1	150	02/05/2024 6:43	02/12/2024 7:40	7	Forced Outage	Tripped. Agglomeration of bed material due to high temperature
COAL	SMC 2	150	01/14/2024 4:05	01/30/2024 21:12	17	Planned Outage	Planned Outage until February 4 2024
COAL	SLTEC 2	124	12/22/2023 0:00	01/29/2024 23:49	39	Planned Outage	Planned Outage until February 5 2024.
COAL	GMEC Power 2	316	12/17/2023 21:30	02/03/2024 3:27	47	Forced Outage	Tripped at 106MW load while ongoing shutdown due to coal conveyor trouble
COAL	GMEC Power 1	316	12/17/2023 21:52	02/15/2024 14:10	60	Forced Outage	Tripped at 17MW load while ongoing shutdown due to coal conveyor trouble
GEO	MGPP 2	12	02/13/2024 0:25	02/16/2024 21:30	4	Planned Outage	Minor PMS until February 16 2024
GEO	MGPP 1	20	02/13/2024 0:39	02/16/2024 17:21	4	Planned Outage	Minor PMS until February 16 2024
HYD	Binga 4	35	02/20/2024 8:01	02/24/2024 23:35	5	Planned Outage	Annual Preventive Maintenance until February 25 2024.
HYD	Binga 4	35	02/13/2024 8:01	02/17/2024 16:49	4	Planned Outage	Planned Outage
HYD	Binga 3	35	02/13/2024 8:01	02/17/2024 20:23	5	Planned Outage	Planned Outage until February 18 2024.
HYD	Binga 2	35	02/13/2024 8:01	02/17/2024 16:49	4	Planned Outage	Planned Outage
HYD	Binga 1	35	02/13/2024 8:01	02/17/2024 16:49	4	Planned Outage	Planned Outage
HYD	Kalayaan 2	183	01/23/2024 0:00	01/27/2024 18:53	5	Planned Outage	Planned Outage until January 29 2024
HYD	Kalayaan 1	183	01/23/2024 0:00	01/29/2024 16:29	7	Planned Outage	Planned Outage until January 29 2024
NATG	San Lorenzo 1	265	02/02/2024 23:26	02/13/2024 15:07	11	Planned Outage	Planned Outage until February 16 2024.
NATG	Ilijan B3	220	01/24/2024 23:42	02/12/2024 23:01	19	Planned Outage	Planned Outage until February 17 2024.
NATG	Ilijan B2	190	02/01/2024 0:00	02/12/2024 15:29	12	Forced Outage	Extended outage until February 12 2024.
NATG	Ilijan B1	190	01/24/2024 23:53	02/15/2024 23:42	22	Planned Outage	Planned Outage until February 17 2024.
NATG	San Lorenzo 2	265	01/19/2024 23:39	01/31/2024 1:59	11	Planned Outage	Planned Outage until February 2 2024.
NATG	Ilijan B2	190	01/08/2024 0:00	01/31/2024 23:59	24	Planned Outage	Planned Outage until January 31 2024.
SOLR	Subsol	85.5	02/01/2024 0:00	02/03/2024 22:49	3	Planned Outage	Annual Preventive Maintenance of HVE and Secondary Equipment until February 3 2024.

ANNEX

List of Major Plant Outages

Plant Type	Plant/ Unit Name	Capacity (MW)	Date Out	Date In	Duration (Days)	Outage Type	Remarks
Visayas							
BIOF	South Negros	25	01/12/2024 13:42	02/12/2024 13:07	31	Forced Outage	Auto-tripped due to undervoltage relay activation.
COAL	Kepeco Salcon 1	103	02/08/2024 16:02	02/12/2024 3:52	3	Forced Outage	Unit cut-out due to possible tube leak Target cut-in days within 3-4 days
COAL	THVI 1	169	02/07/2024 0:23	02/24/2024 5:20	17	Planned Outage	UNIT MANUALLY CUT-OUT FOR PMS
COAL	PEDC 1	83.7	02/01/2024 0:06	02/16/2024 23:43	16	Planned Outage	PMS
COAL	CEDC 3	82	02/01/2024 0:00	02/13/2024 10:26	12	Forced Outage	Shutdown to conduct Major Overhaul (MOH) per approved GOMP schedule Extended
COAL	THVI 2	169	01/27/2024 0:00	02/14/2024 3:22	18	Planned Outage	Annual PMS
GEO	Leyte 3	40.2	02/10/2024 10:25	02/20/2024 13:15	10	Forced Outage	Emergency shutdown
GEO	Upper Mahiao 4	27.5	12/15/2023 13:08	02/04/2024 2:12	51	Forced Outage	Insufficient steam.
GEO	PGPP1 Unit 2	37.5	11/21/2023 0:00	02/03/2024 0:00	74	Maintenance Outage	PGPP1 U2 tripped due to tripping of hot well pump during shutdown process. Scheduled total plant shutdown at 0006H.
HYD	THC 2	5.1	02/12/2024 13:54	02/15/2024 10:19	3	Forced Outage	Affected by auto-tripping of Paranas-Quinapondan line.
HYD	THC 3	5.1	02/04/2024 7:51	02/12/2024 14:15	8	Forced Outage	Affected by Auto-tripping of Paranas-Quinapondan 69kV Line.
HYD	THC 2	5.1	01/31/2024 8:49	02/04/2024 7:56	4	Forced Outage	Change unit
HYD	THC 3	5.1	01/26/2024 22:15	01/31/2024 8:04	4	Forced Outage	Emergency stopped.
OIL	BDPP Unit 2	4	02/12/2024 10:58	02/18/2024 18:48	6	Forced Outage	Severe exhaust gas leak at turbo charger e-bank.
OIL	PDPP3 E	12	02/09/2024 17:32	02/19/2024 17:51	10	Forced Outage	Abnormal sound at Turbo Charger
OIL	PDPP1 Unit 3	5	02/08/2024 18:07	02/19/2024 17:41	11	Forced Outage	water leak at combustion chamber
OIL	PDPP3 G	13	02/07/2024 18:20	02/09/2024 19:25	2	Forced Outage	excessive HT water leak cyl B4

ANNEX

List of Major Plant Outages

Plant Type	Plant/ Unit Name	Capacity (MW)	Date Out	Date In	Duration (Days)	Outage Type	Remarks
Mindanao							
BIOF	BFI BIOMASS U1	5.7	02/17/2024 20:04	02/23/2024 19:34	6	Forced Outage	Generator trouble
BIOF	BFI BIOMASS U1	5.7	02/11/2024 18:48	02/14/2024 1:28	2	Forced Outage	Affected by tripping of Tacurong-Surallah 69kV Line
COAL	MALITA 1	149.9	01/09/2024 8:14	02/19/2024 16:26	41	Forced Outage	PMS (Non-GOMP).
COAL	SMF1 U1	118.5	12/13/2023 20:38	02/20/2024 11:40	69	Forced Outage	Forced outage. Cause Turbine High Vibration. ETC February 21 2024.
COAL	STE U1	116	02/05/2024 16:50	02/09/2024 23:17	4	Forced Outage	Emergency Shutdown due to Boiler Fouling.
COAL	MCC U3	55	01/19/2024 0:02	02/02/2024 0:28	14	Forced Outage	PMS(Non-GOMP). ETC February 8 2024
HYD	TU1 U1	6.7	02/14/2024 0:07	02/18/2024 20:46	5	Planned Outage	PMS(GOMP). ETC Feb 21 2024
HYD	PG4 U3	75	02/01/2024 22:49	02/06/2024 18:10	5	Forced Outage	On line from forced Outage. Indication Back-up Protection Electrical Emergency Shutdown.
HYD	AG6 U1	31.5	01/31/2024 0:00	02/06/2024 21:41	7	Forced Outage	Extended outage from original GOMP schedule (January 16-30 2024).
HYD	13NABUN	3	01/31/2024 4:52	02/02/2024 11:30	2	Forced Outage	Forced Outage due to clogged trash rack of desander intake.
HYD	ASG U0	8.6	01/27/2024 12:07	06/27/2024 17:21	152	Forced Outage	Affected by Butuan-Santiago 69kV Line emergency shutdown by ANECO.
HYD	MN2 U2	6.8	01/27/2024 7:23	06/27/2024 15:24	152	Forced Outage	PMS (Non GOMP)
HYD	AG6 U2	31.1	01/16/2024 9:02	01/27/2024 18:18	11	Forced Outage	PMS (Non-GOMP). ETC January 30 2024

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