MONTHLY OVER-RIDING CONSTRAINTS HIGHLIGHTS

26 January to 25 February 2024

The information contained in this document is based on data that are subject to continuous verification by the Philippine Electricity Market Corporation (PEMC). The same information is subject to change as updated figures come in.

SUMMARY OF OBSERVATIONS

- Commissioning tests at Luzon power plants accounted for 59% of the total impositions for the billing period. This was followed by the resumption of performance tests of natural gas plants related to the commissioning of their Liquefied Natural Gas (LNG) fuel. Notably, Luzon plants accounted for a significant portion (89%) of the total impositions during this billing period.

- Similar to the previous billing period, most System Operator (SO) impositions in Mindanao were due to the designation of oil-based plants as Must-Run Units (MRUs) to address the region's voltage requirements. Additionally, coal-fired plants were scheduled as MRUs during the billing period to address thermal limitations within the grid.

AT A GLANCE

Total Over-riding Constraints Imposition

104,849

▲ 16.8%
increase from previous billing period

LUZON
93,711

NATURAL GAS plants had the **HIGHEST # of OC impositions**

NATURAL GAS plants, on average, had the **LARGEST MW scheduled due to PERFORMANCE TEST**

MOST impositions were due to **COMMISSIONING TEST** of various plants

VISAYAS
3,455

GEOTHERMAL plants had the **HIGHEST # of OC impositions**

COAL plants, on average, had the **LARGEST MW scheduled due to ANCILLARY SERVICE TEST**

MOST impositions were due to the conduct of **COMMISSIONING TEST** of geothermal plant

MINDANAO
7,683

OIL-BASED plants had the **HIGHEST # of OC impositions**

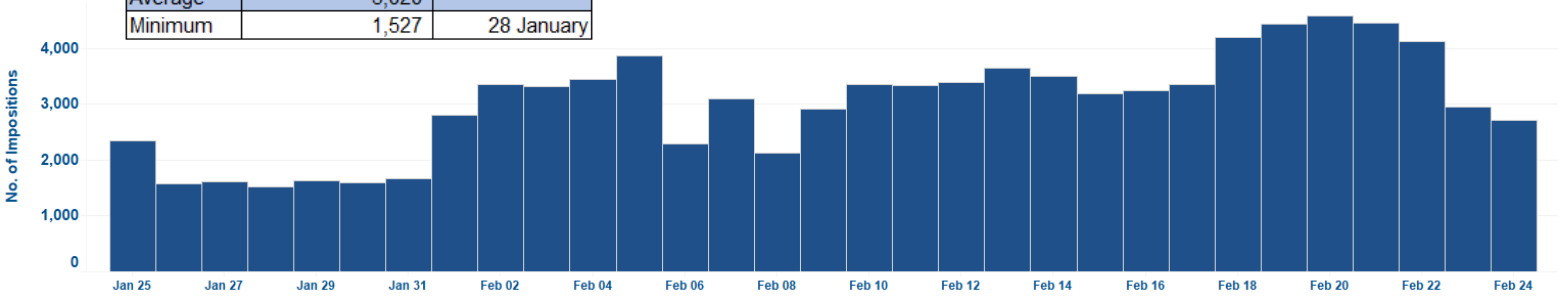
OIL-BASED plants, on average, had the **LARGEST MW scheduled due to EMISSION TEST**

MOST impositions were due to **MUST-RUN UNIT**

OC IMPOSITIONS

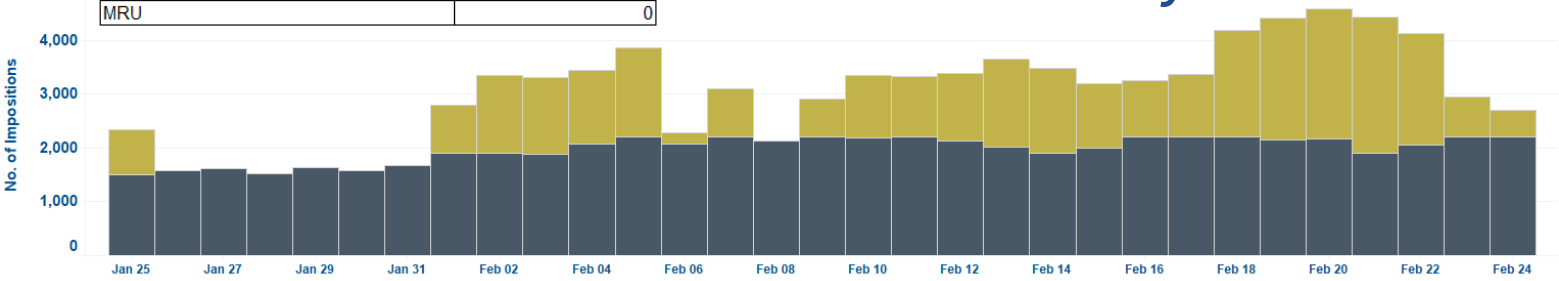
LUZON

	No. of Impositions	Date
Maximum	4,586	20 February
Average	3,020	
Minimum	1,527	28 January



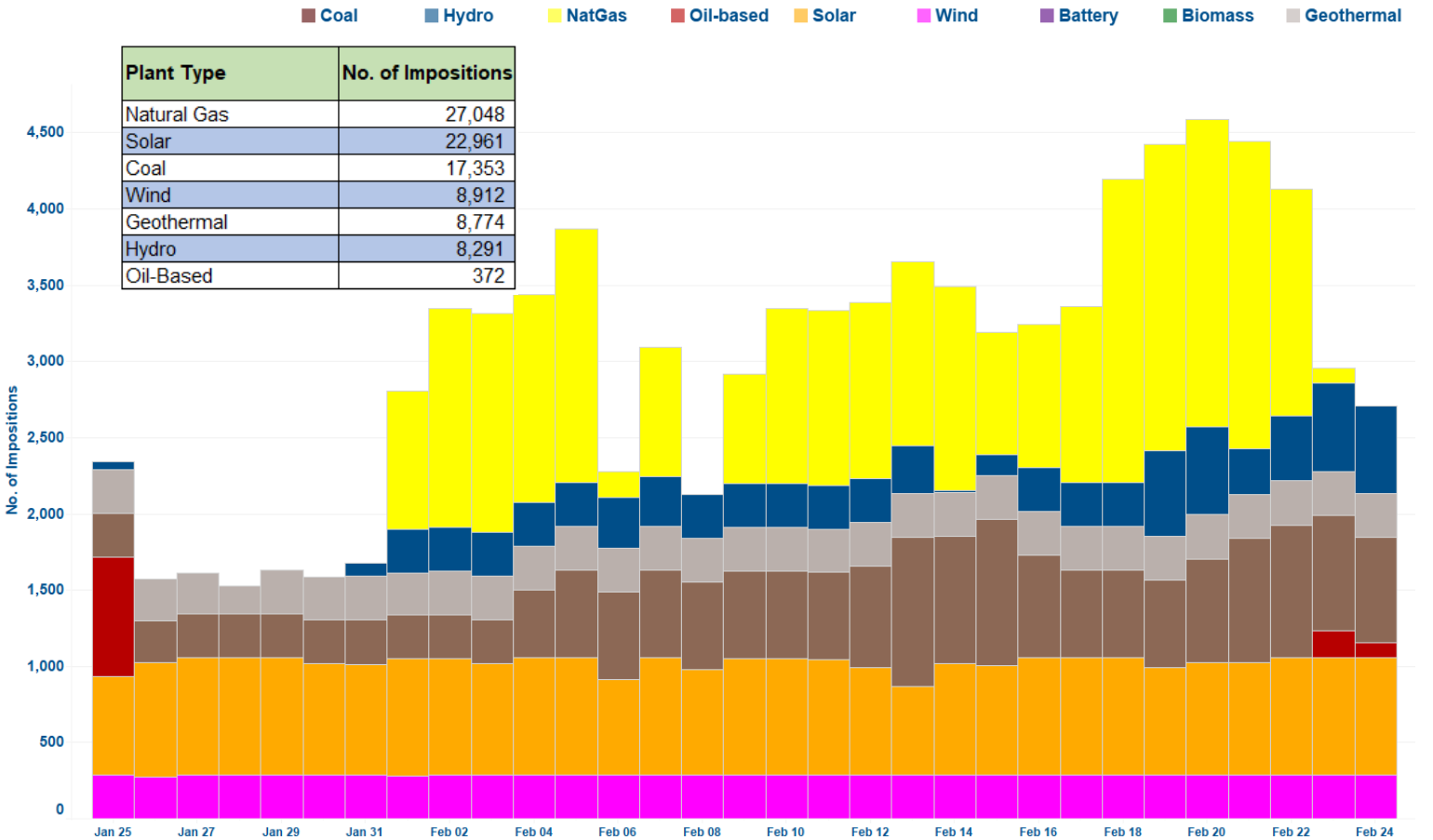
by incident

Incident	No. of Impositions
Commissioning Test	62,245
Commercial and Regulatory Requirements	31,466
MRU	0



by plant type

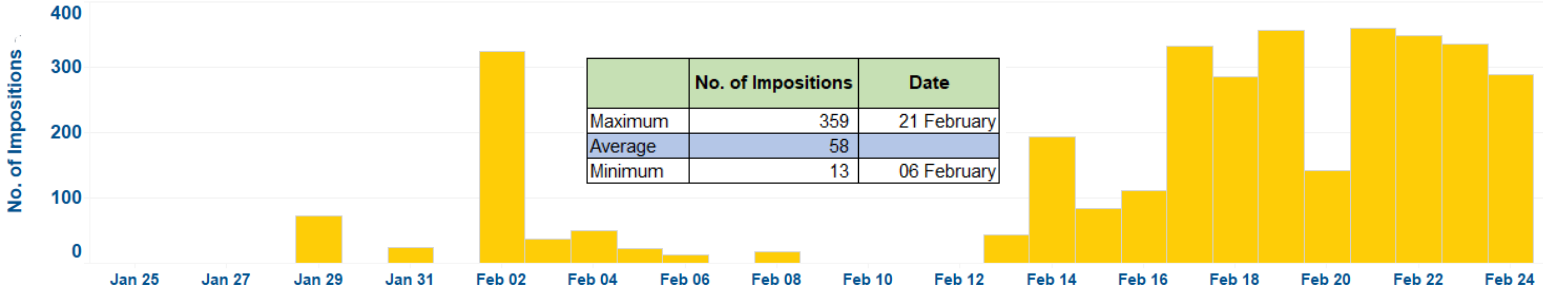
Plant Type	No. of Impositions
Natural Gas	27,048
Solar	22,961
Coal	17,353
Wind	8,912
Geothermal	8,774
Hydro	8,291
Oil-Based	372



Majority of the OC impositions accounted to **Luzon grid plants** were attributable to the conduct of **performance tests** of **natural gas plants** which resumed during the start of February until 23 February 2024.

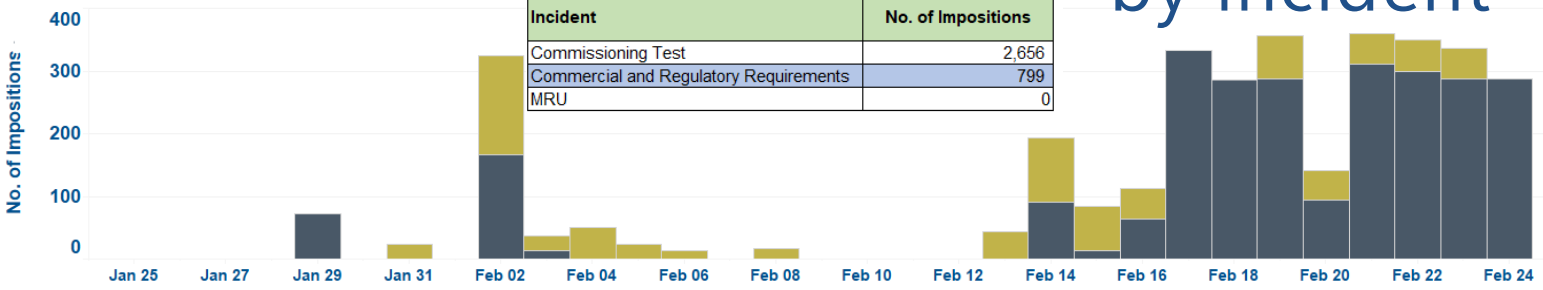
OC IMPOSITIONS

VISAYAS



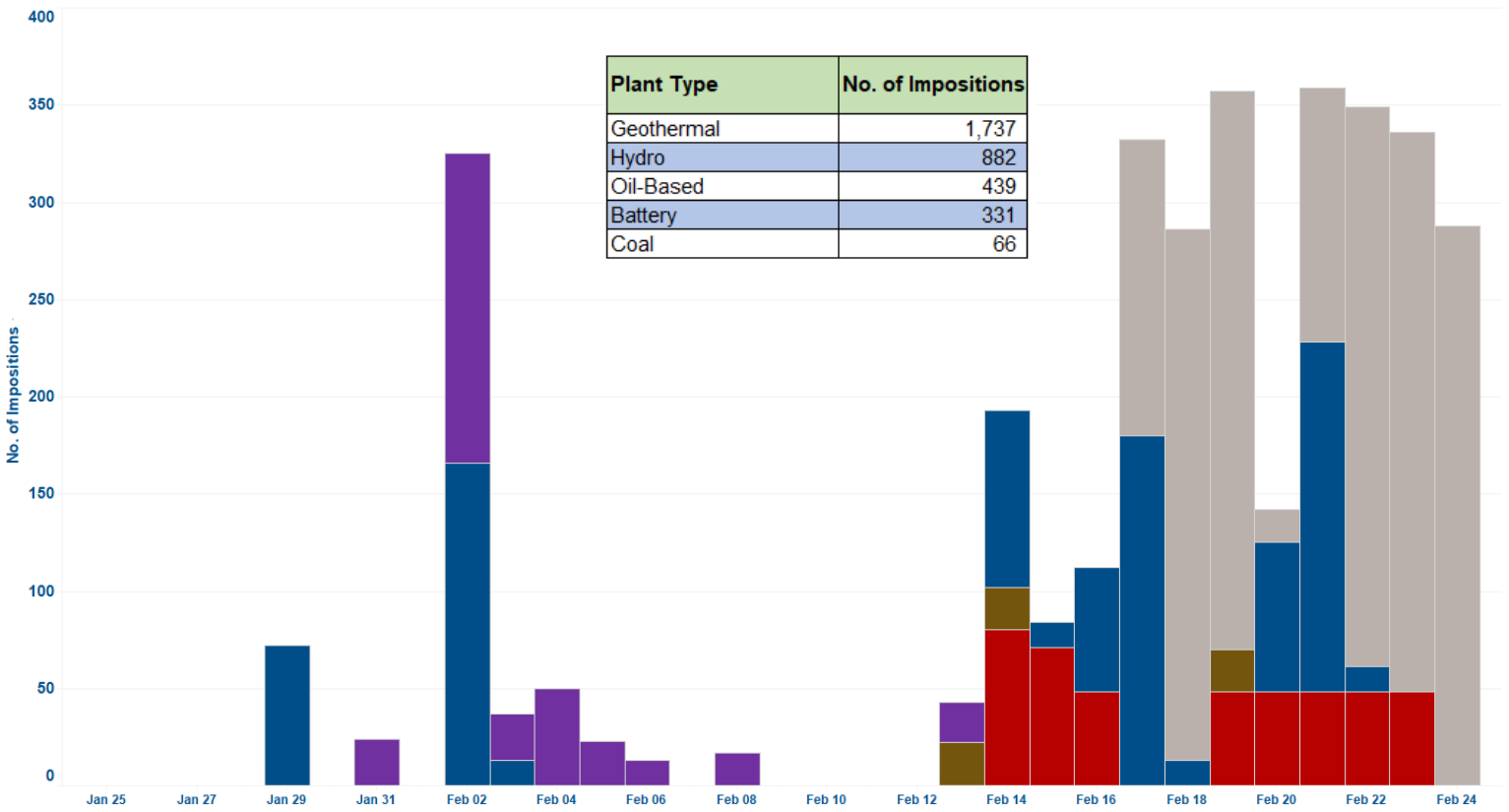
	No. of Impositions	Date
Maximum	359	21 February
Average	58	
Minimum	13	06 February

by incident



Incident	No. of Impositions
Commissioning Test	2,656
Commercial and Regulatory Requirements	799
MRU	0

by plant type



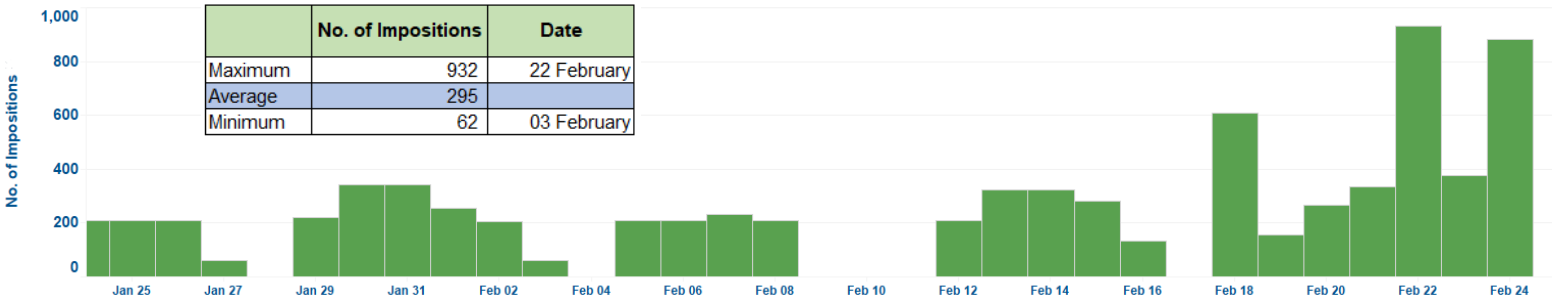
Plant Type	No. of Impositions
Geothermal	1,737
Hydro	882
Oil-Based	439
Battery	331
Coal	66

Commissioning test of geothermal plants was observed at the tail end of the billing period.
Small shares from hydro, oil-based and battery were noted during the reviewed billing period.

OC IMPOSITIONS

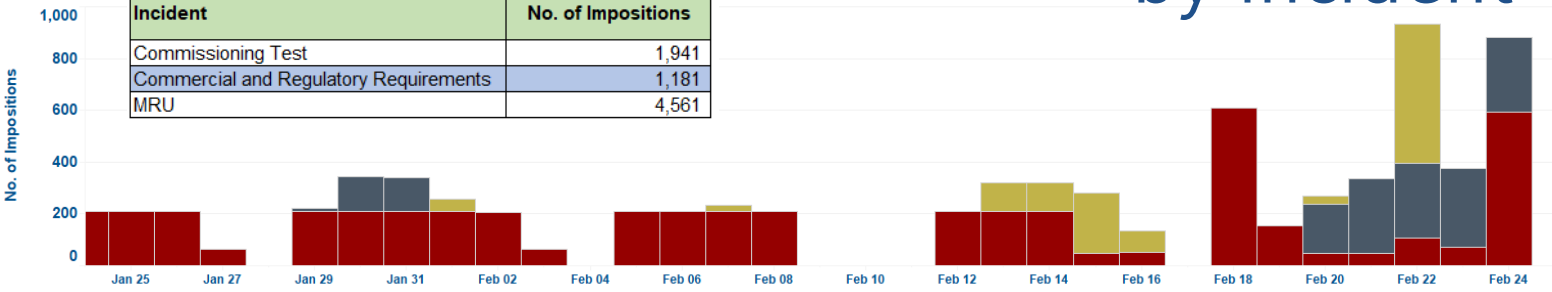
MINDANAO

	No. of Impositions	Date
Maximum	932	22 February
Average	295	
Minimum	62	03 February



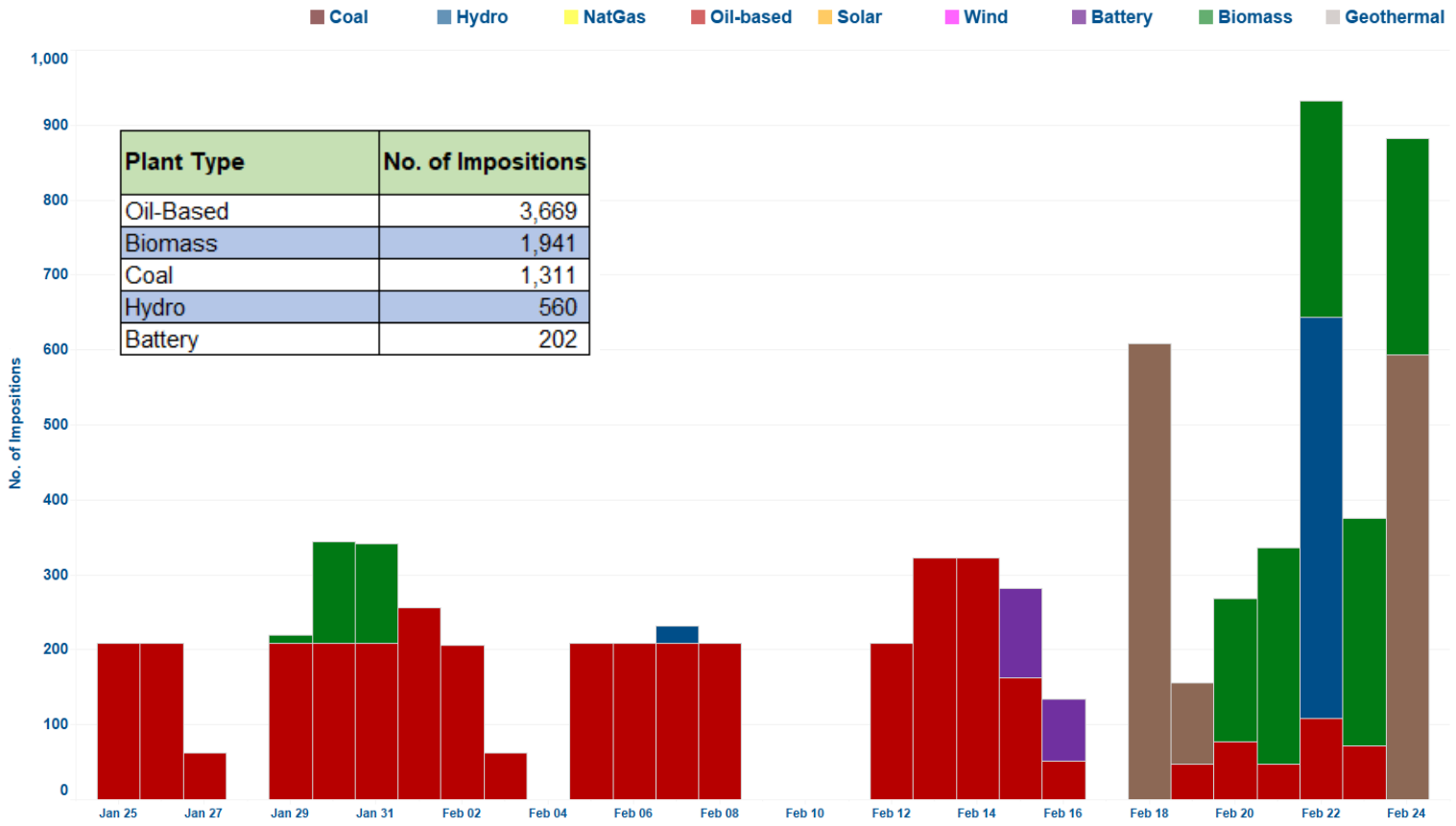
by incident

Incident	No. of Impositions
Commissioning Test	1,941
Commercial and Regulatory Requirements	1,181
MRU	4,561



by plant type

Plant Type	No. of Impositions
Oil-Based	3,669
Biomass	1,941
Coal	1,311
Hydro	560
Battery	202

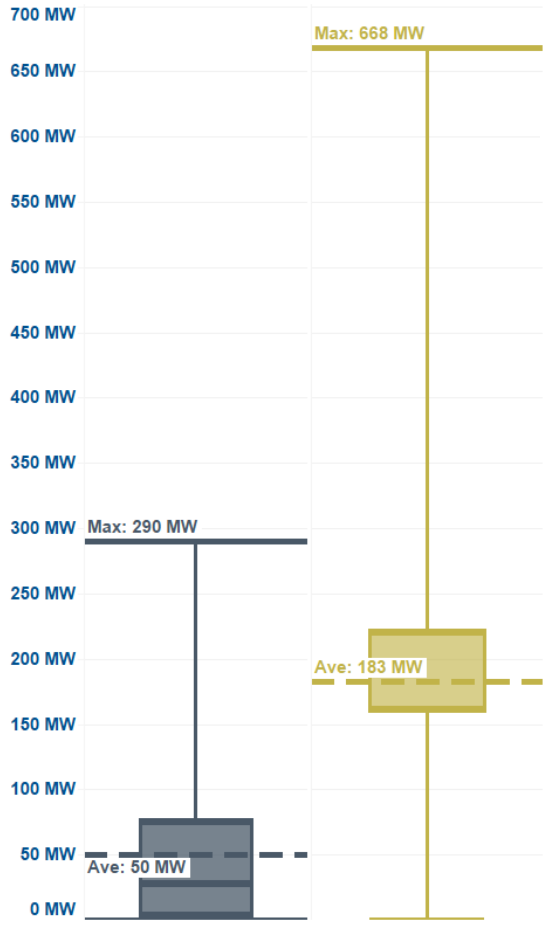


In Mindanao, **oil-based and coal** plants were dispatched **mostly (59% of the time) as MRU** during the February 2024 billing period to address system voltage requirement of the region. It was likewise observed that OC impositions decreased during the weekends and holidays. In addition, increase in the number of impositions towards the end of the billing period is attributable to the conduct of commissioning test of biomass plants.

MW SCHEDULES

LUZON

by incident



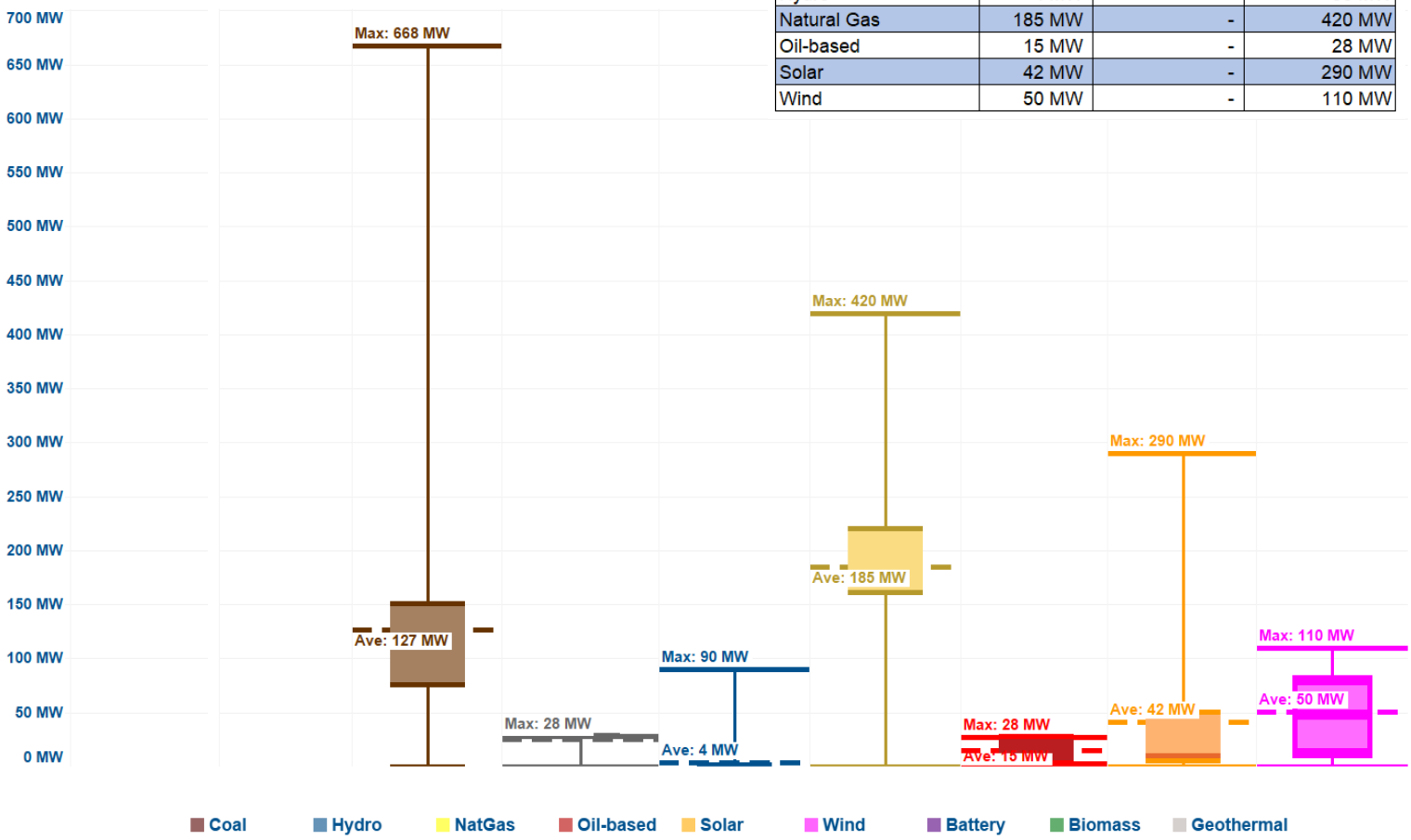
Incident	Average	Minimum	Maximum
Commissioning Test	50 MW	-	290 MW
Commercial and Regulatory Requirements	183 MW	-	668 MW
MRU	-	-	-

The highest average MW scheduled in Luzon was at 183 MW due to conduct of performance tests of a natural gas plant during the billing period for commissioning of new liquefied natural gas fuel of natural gas plants. The performance test began in November 2023.

Grid compliance and emission test of coal plants caused for the resource type to reach its maximum MW scheduled at 668 MW.

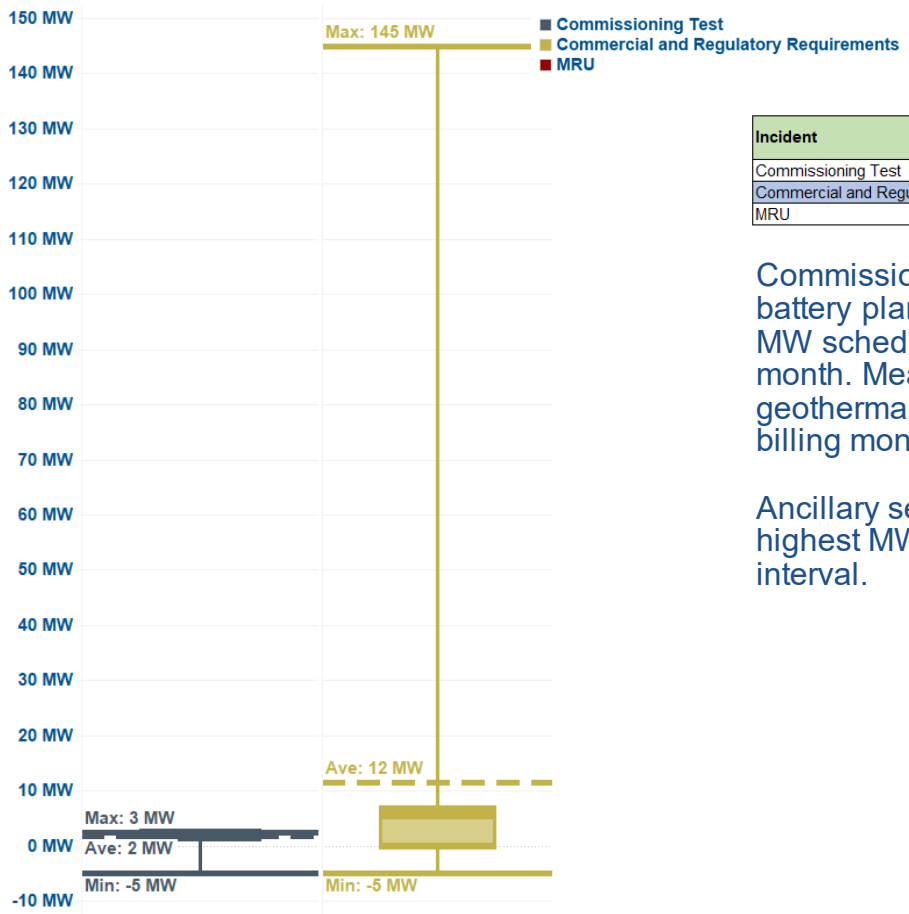
by plant type

Plant Type	Average	Minimum	Maximum
Battery Energy Storage	-	-	-
Biomass	-	-	-
Coal	127 MW	-	668 MW
Geothermal	28 MW	-	28 MW
Hydro	4 MW	-	90 MW
Natural Gas	185 MW	-	420 MW
Oil-based	15 MW	-	28 MW
Solar	42 MW	-	290 MW
Wind	50 MW	-	110 MW



VISAYAS

by incident

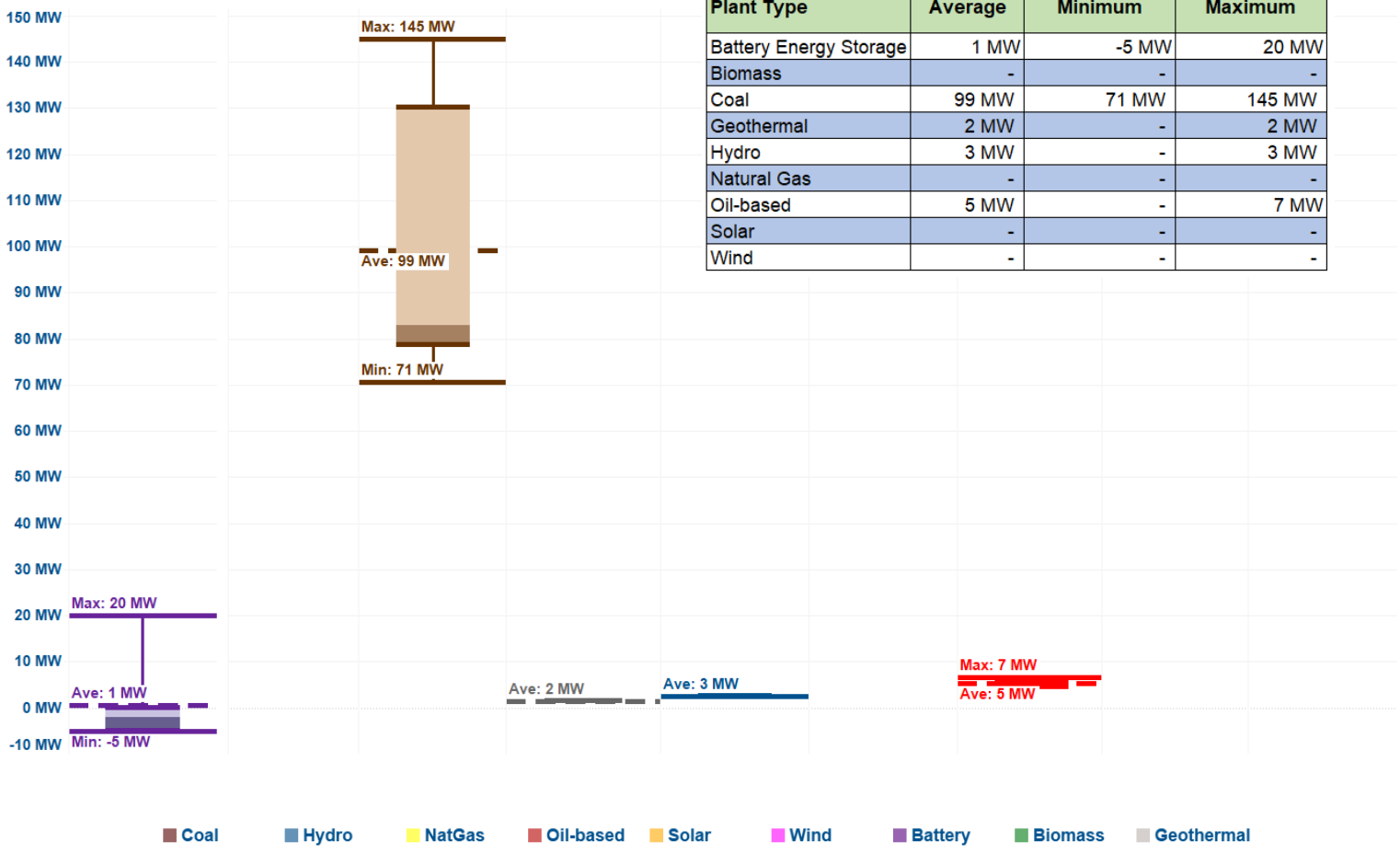


Incident	Average	Minimum	Maximum
Commissioning Test	2 MW	-5 MW	3 MW
Commercial and Regulatory Requirements	12 MW	-5 MW	145 MW
MRU	-	-	-

Commissioning test and performance test of a battery plant was the reason for the negative MW schedule observed during the billing month. Meanwhile, commissioning test of new geothermal plant was also observed during the billing month.

Ancillary service test of coal plant recorded the highest MW schedule both on average and per interval.

by plant type

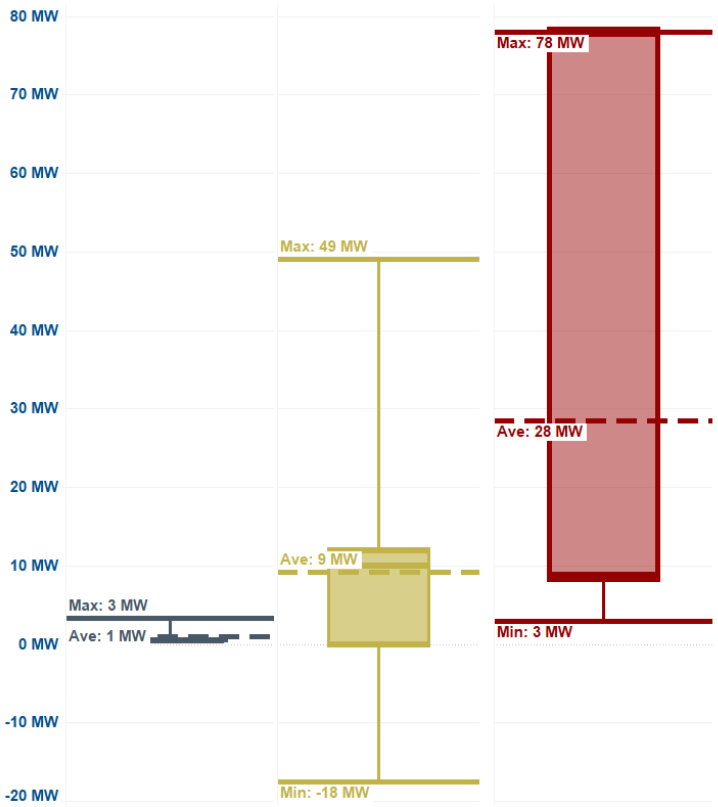


Plant Type	Average	Minimum	Maximum
Battery Energy Storage	1 MW	-5 MW	20 MW
Biomass	-	-	-
Coal	99 MW	71 MW	145 MW
Geothermal	2 MW	-	2 MW
Hydro	3 MW	-	3 MW
Natural Gas	-	-	-
Oil-based	5 MW	-	7 MW
Solar	-	-	-
Wind	-	-	-

MW SCHEDULES

MINDANAO

by incident



Commissioning Test
Commercial and Regulatory Requirements
MRU

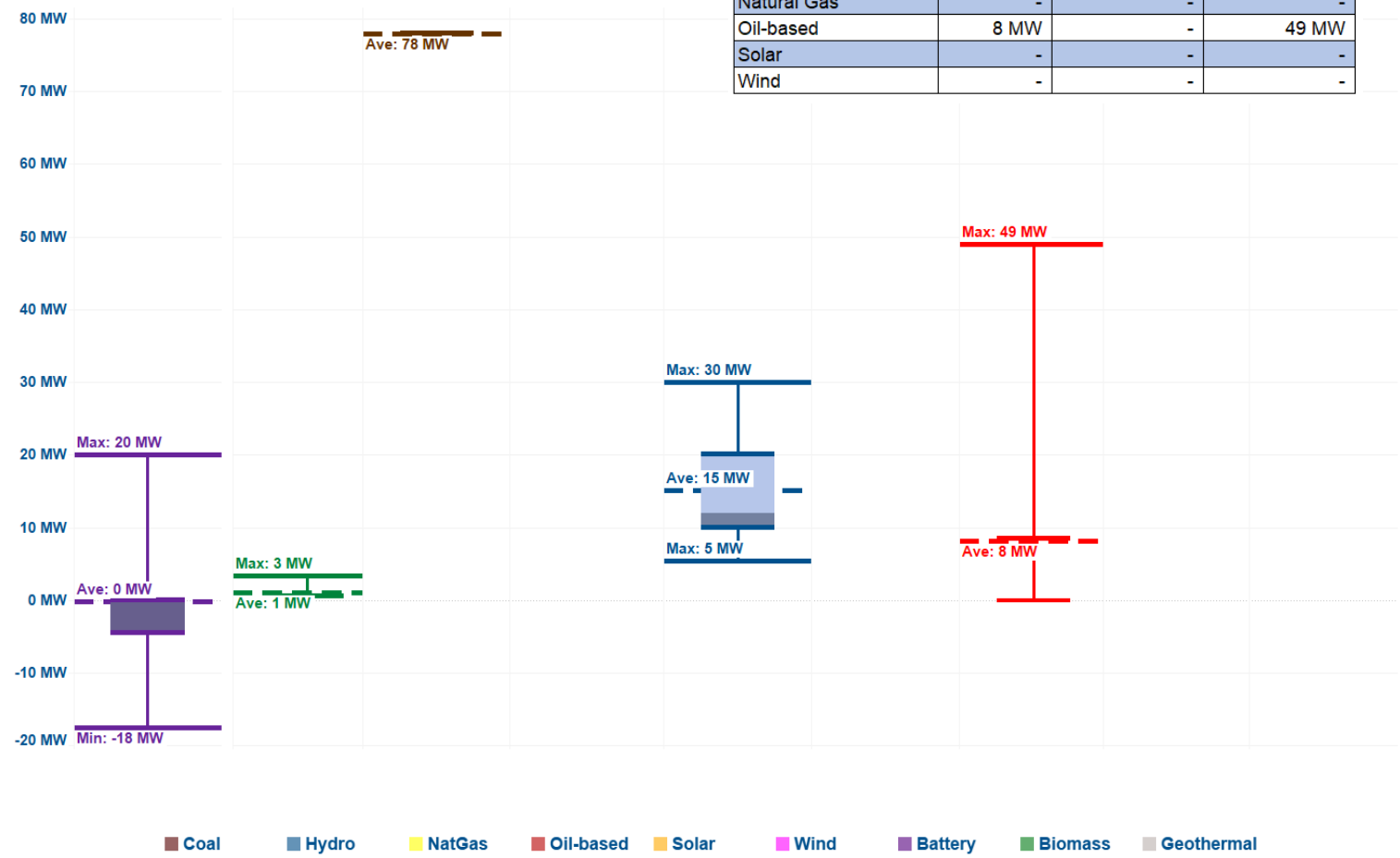
Incident	Average	Minimum	Maximum
Commissioning Test	1 MW	-	3 MW
Commercial and Regulatory Requirements	9 MW	-18 MW	49 MW
MRU	28 MW	3 MW	78 MW

Majority of impositions in Mindanao remained to be related to oil-based plants dispatched as MRU to address system voltage requirements, with average scheduled capacity of 8 MW. A Coal plant was likewise observed to be dispatched as MRU during the billing period to address the thermal unit limitation of the grid, with an average scheduled capacity at 78 MW scheduled.

Additionally, commissioning test of biomass plant was observed during the billing period.

by plant type

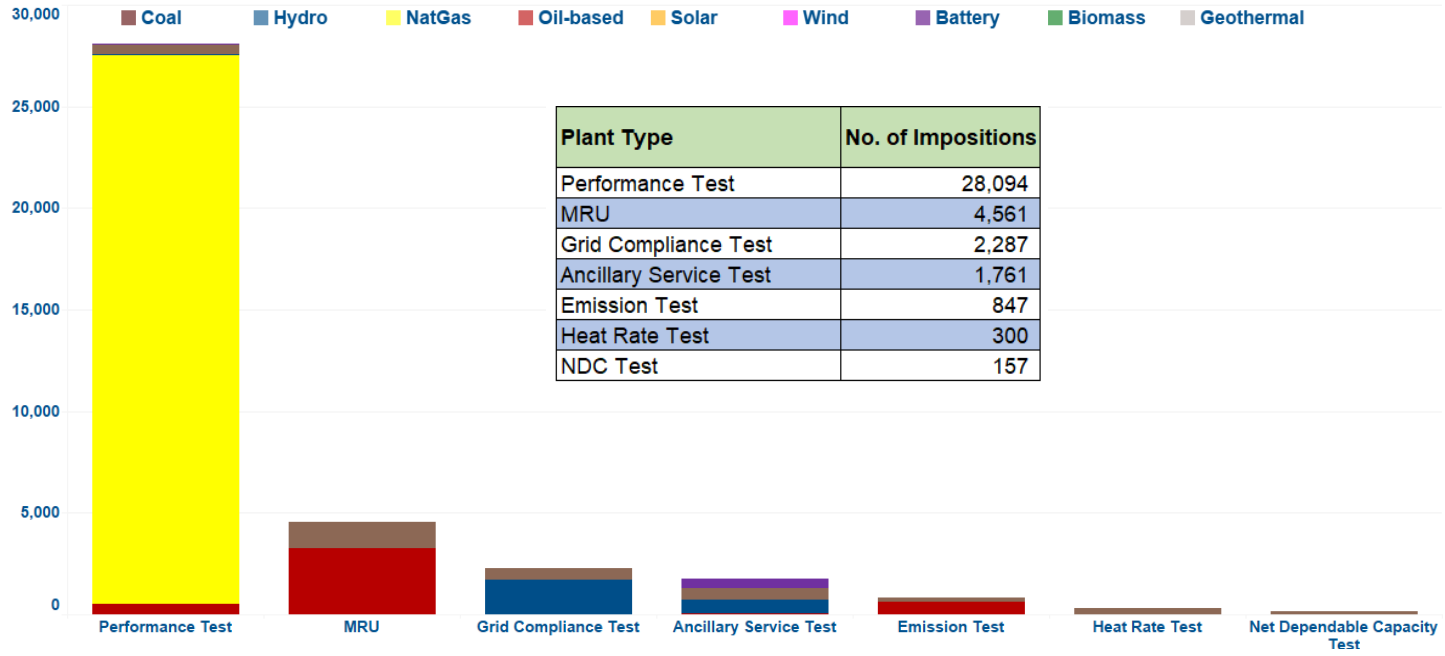
Plant Type	Average	Minimum	Maximum
Battery Energy Storage	0 MW	-18 MW	20 MW
Biomass	1 MW	-	3 MW
Coal	75 MW	-	75 MW
Geothermal	-	-	-
Hydro	15 MW	5 MW	30 MW
Natural Gas	-	-	-
Oil-based	8 MW	-	49 MW
Solar	-	-	-
Wind	-	-	-



OC IMPOSITIONS

by incident

(excluding commissioning test)

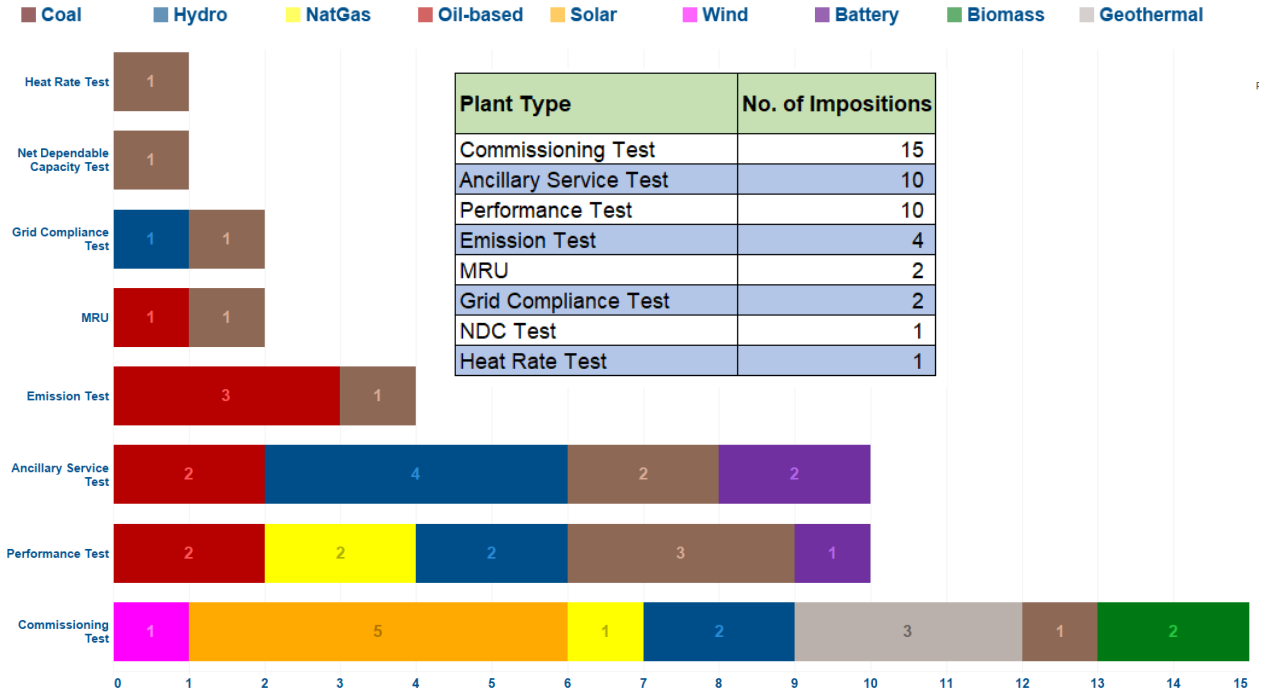


Plant Type	No. of Impositions
Performance Test	28,094
MRU	4,561
Grid Compliance Test	2,287
Ancillary Service Test	1,761
Emission Test	847
Heat Rate Test	300
NDC Test	157

Picking up from the trend of the previous billing period, majority of impositions were imposed to natural gas plants attributable to the conduct of performance test in relation to the shifting to LNG fuel. This was followed by oil-based plants dispatched as MRU, then ancillary service test of hydro and oil-based plants.

NUMBER OF PLANTS

by incident



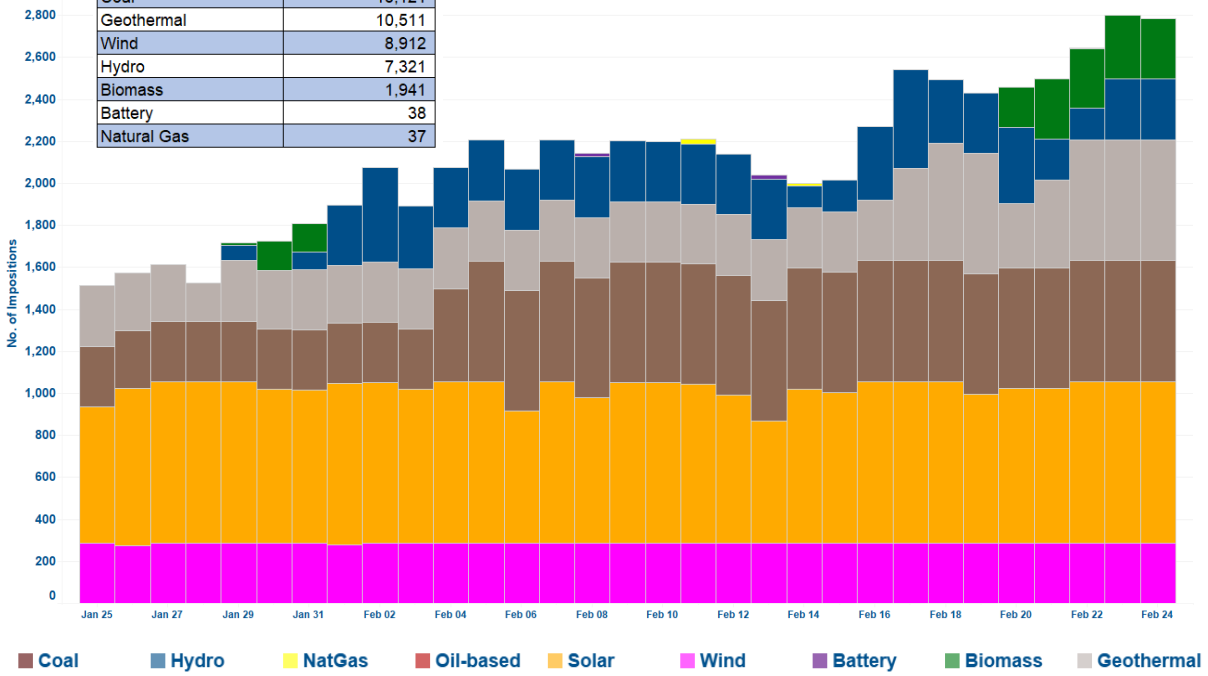
Plant Type	No. of Impositions
Commissioning Test	15
Ancillary Service Test	10
Performance Test	10
Emission Test	4
MRU	2
Grid Compliance Test	2
NDC Test	1
Heat Rate Test	1

During the billing period, a total of forty-five (45) plants were imposed with over-riding constraints, as compared to 39 plants during the previous period. Fifteen (15) of these were related to commissioning tests while, impositions related to performance and ancillary service tests were related to ten (10) plants each category. Additionally, a few plants were involved in other specific tests: four (4) conducted emission tests, two (2) conducted grid compliance tests, and one (1) plant underwent heat and net dependable capacity test. Meanwhile, the remaining two (2) plants were dispatched as MRU during the billing period.

OC IMPOSITIONS

PLANTS UNDER COMMISSIONING TESTS

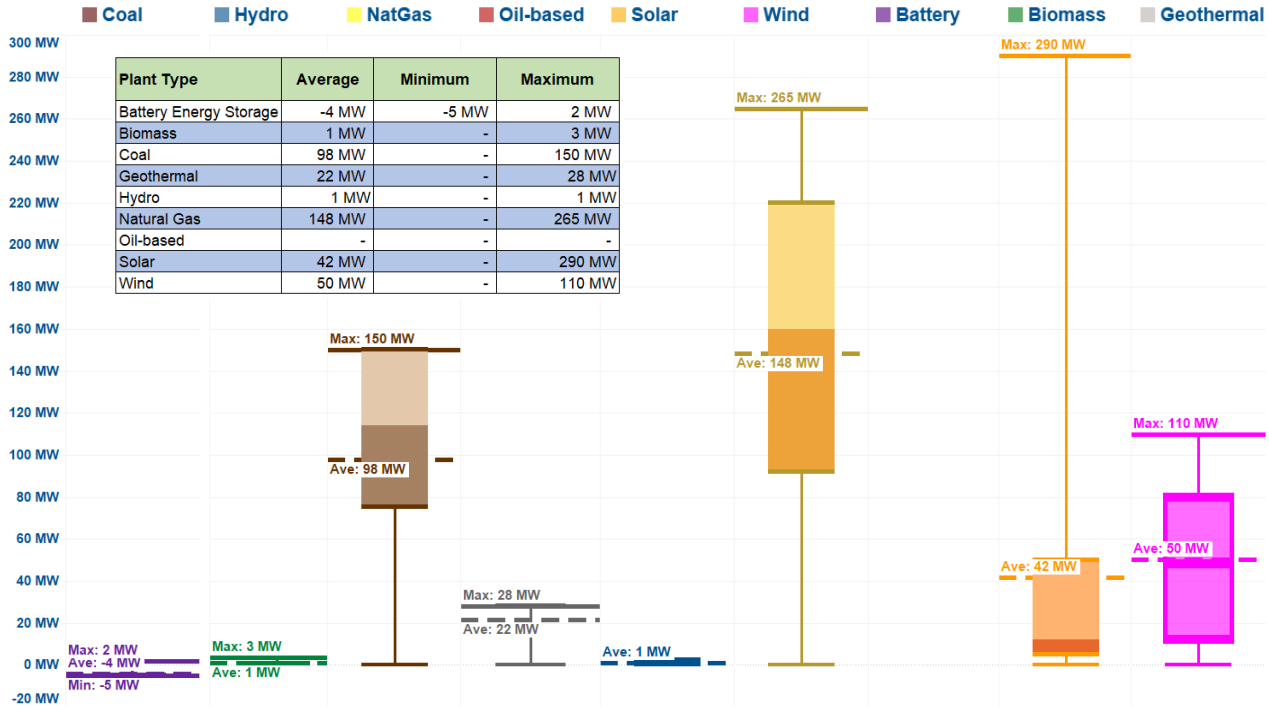
Plant Type	No. of Impositions
Solar	22,961
Coal	15,121
Geothermal	10,511
Wind	8,912
Hydro	7,321
Biomass	1,941
Battery	38
Natural Gas	37



MW SCHEDULE

PLANTS UNDER COMMISSIONING TESTS

Plant Type	Average	Minimum	Maximum
Battery Energy Storage	-4 MW	-5 MW	2 MW
Biomass	1 MW	-	3 MW
Coal	98 MW	-	150 MW
Geothermal	22 MW	-	28 MW
Hydro	1 MW	-	1 MW
Natural Gas	148 MW	-	265 MW
Oil-based	-	-	-
Solar	42 MW	-	290 MW
Wind	50 MW	-	110 MW



In terms of the number of occurrences, renewable plants such as solar, geothermal, and wind plants experienced the highest number of OCs related to commissioning tests during the billing period, accounting for forty-nine percent (49%) of the total occurrences.

A solar plant, boasting a substantial capacity, had the highest scheduled MW during the billing period. However, on average, this plant is mostly scheduled at 42 MW, which may be a result of the variability of the technology. In contrast, a coal plant saw an almost consistent schedule at a high level of MW capacity throughout its testing period.

ANNEX

Plants with Over-riding Constraints

Plant/Unit Name	Plant Type	Registered Capacity (MW)[1]
LUZON		
Balaoi and Caunayan Wind Power Project Phase 1	Wind	80
Binga Hydroelectric Power Plant - Unit 4	Hydro	35
Cagayan North Solar Power Plant	Solar	115
Cayanga-Bugallon Solar Power Plant	Solar	75.1
Mariveles Coal-fired Thermal Power Plant Unit 2	Coal	150
Orion Solar Power Plant	Solar	16.2
Bunker-C Fired Thermal Power Plant (BCFDPP)	Oil-Based	110
San Marcelino Solar Power Project	Solar	326.4
Trust Solar Power Plant	Solar	15.4
Pililla Diesel Power Plant Sector 1	Oil-Based	28
Pililla Diesel Power Plant Sector 2	Oil-Based	22
Pililla Diesel Power Plant Sector 3	Oil-Based	22
Pililla Diesel Power Plant Sector 4	Oil-Based	28
Pililla Diesel Power Plant Sector 5	Oil-Based	22
Pililla Diesel Power Plant Sector 6	Oil-Based	28
Kalayaan Hydro Electric Power Plant 1	Hydro	183
Lower Labayat Hydroelectric Power Plant	Hydro	1.5
Palayan Binary Power Plant	Geothermal	31
San Gabriel Power Plant	Natural Gas	420
Sta. Rita Natural Gas Power Plant 1	Natural Gas	257.3
Sta. Rita Natural Gas Power Plant 2	Natural Gas	255.7
Sta. Rita Natural Gas Power Plant 3	Natural Gas	265.5
Sta. Rita Natural Gas Power Plant 4	Natural Gas	264
San Lorenzo Combined-Cycle Gas Turbine Power Plant Unit 50	Natural Gas	265
San Lorenzo Combined-Cycle Gas Turbine Power Plant Unit 60 (San Lorenzo CCGTPP)	Natural Gas	265
Angat Hydroelectric Power Plant Unit A	Hydro	19.6
GNPower Dinginin Coal Plant - Unit 2	Coal	668
Mariveles Coal Fired Thermal Power Plant Unit 2	Coal	316
Mariveles Coal-fired Thermal Power Plant Unit 3	Coal	150
Pantabangan Hydro Electric Power Plant Unit 1	Hydro	60
Pantabangan Hydro Electric Power Plant Unit 2	Hydro	60
Pagbilao Coal-Fired Power Plant 1	Coal	382
Pagbilao Coal-Fired Power Plant 2	Coal	382

[1] As of 05 February 2024

Plant/Unit Name	Plant Type	Registered Capacity (MW)[1]
Pagbilao 3 Power Plant	Coal	420
QPPL Coal-Fired Power Plant	Coal	460
SBPL Coal Fired Power Plant	Coal	455
South Luzon Thermal Energy Corporation Coal-Fired Thermal Power Plant Unit 1	Coal	122
South Luzon Thermal Energy Corporation Coal-Fired Thermal Power Plant Unit 2	Coal	124
VISAYAS		
Ormoc Battery Energy Storage System	Battery	40
BOHECO I Sevilla Mini Hydro Power Plant	Hydro	2.5
(Phase 1) Biliran Geothermal Power Plant Project	Geothermal	2
Naga Oil-Fired Power Plant Unit 3	Oil-Based	5.5
Naga Oil-Fired Power Plant Unit 4	Oil-Based	5.5
Naga Oil-Fired Power Plant Unit 5	Oil-Based	5.5
Naga Oil-Fired Power Plant Unit 6	Oil-Based	5.5
Unit 1 Calumangan Bunker C-Fired Diesel Power Plant	Oil-Based	4.5
Unit 2 Calumangan Bunker C-Fired Diesel Power Plant	Oil-Based	4.5
Unit 3 Calumangan Bunker C-Fired Diesel Power Plant	Oil-Based	4.5
Unit 4 Calumangan Bunker C-Fired Diesel Power Plant	Oil-Based	6.7
Unit 5 Calumangan Diesel Power Plant	Oil-Based	6.7
Ubay Battery Energy Storage System (BESS)	Battery	20
PEDC Coal-Fired Thermal Power Plant Unit 1	Coal	83.7
PEDC Coal-Fired Thermal Power Plant Unit 2	Coal	83.7
PEDC Unit 3 Circulating Fluidized Bed Power Plant	Coal	150
MINDANAO		
Bunker-C Fired Diesel Power Plant Unit 3	Oil-Based	10.2
Bunker-C Fired Diesel Power Plant Unit 4	Oil-Based	10.2
Bunker-C Fired Diesel Power Plant Unit 5	Oil-Based	10.2
Bunker-C Fired Diesel Power Plant Unit 6	Oil-Based	10.2
Bunker-C Fired Diesel Power Plant Unit 7	Oil-Based	10
Bunker-C Fired Diesel Power Plant Unit 8	Oil-Based	10.1
Bunker-C Fired Diesel Power Plant Unit 10	Oil-Based	10.2
Bunker-C Fired Diesel Power Plant Unit 9	Oil-Based	10.2
Agus I Hydroelectric Power Plant Unit 1	Hydro	35
Agus I Hydroelectric Power Plant Unit 2	Hydro	35
Agus II Hydroelectric Power Plant Unit 1	Hydro	60
Agus II Hydroelectric Power Plant Unit 2	Hydro	60
Agus II Hydroelectric Power Plant Unit 3	Hydro	60
Agus IV Hydroelectric Power Plant Unit 1	Hydro	52.7
Agus IV Hydroelectric Power Plant Unit 2	Hydro	52.7
Agus IV Hydroelectric Power Plant Unit 3	Hydro	52.7
GNPK's Coal Fired Power Plant Unit 2	Coal	151
GNPK's Coal Fired Power Plant Unit 3	Coal	151.3
GNPK's Coal Fired Power Plant Unit 4	Coal	151

Plant/Unit Name	Plant Type	Registered Capacity (MW)[1]
Bunker C. Fired Diesel Power Plant	Oil-Based	10.4
ASIGA Hydroelectric Power Plant	Hydro	8.6
Maco Battery Energy Storage System (BESS)	Battery	20
Bunker C-Fired Diesel Power Plant	Oil-Based	13
Mobile 1 Bunker C-Fired Power Plant Unit 1	Oil-Based	49
Mobile 1 Bunker C-Fired Power Plant Unit 2	Oil-Based	50
Biomass Power Plant	Biomass	12.4

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