MONTHLY OVER-RIDING CONSRAINTS HIGHLIGHTS

26 November to 25 December 2023

SUMMARY OF OBSERVATIONS

- Continuous conduct of performance test of natural gas plants in Luzon shifting to liquefied natural gas (LNG) as fuel contributed in the steady increase of the overall count of imposition during the billing period and was observed to be conducted at the start of the billing period.

- Keeping with the trend of the November billing period, OC impositions in Mindanao were mostly attributable to the designation of Oil-based plants as Must-Run Units (MRUs) to address system voltage requirement of the region.

AT A GLANCE

Total Over-riding Constraints Imposition

80,411

▲ **57%** increase from previous billing period

LUZON
74,211

NATURAL GAS plants have the HIGHEST # of OC imposition

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

MOST impositions were due to **PERFORMANCE TEST** of natural gas plants

VISAYAS
1,098

BESS plants have the HIGHEST # of OC imposition

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

MOST impositions were due to the conduct of **ANCILLARY SERVICE TEST** of BESS

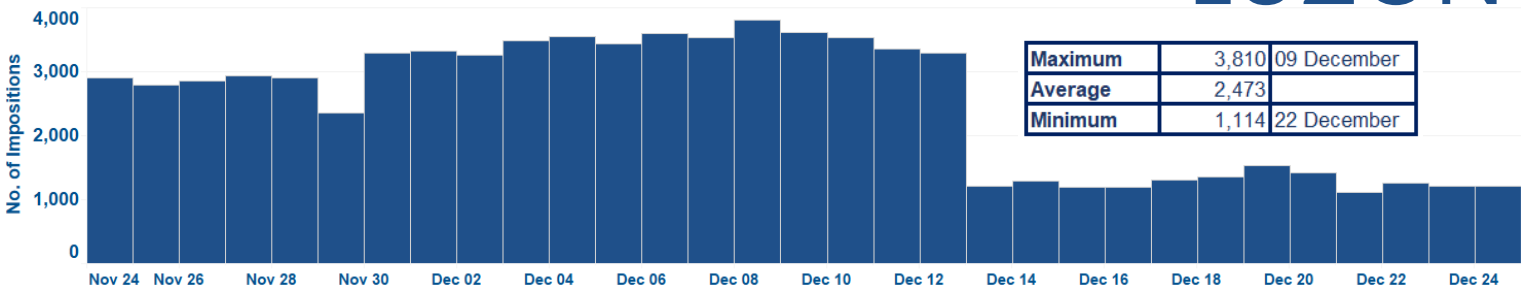
MINDANAO
5,102

OIL-BASED plants have the HIGHEST # of OC imposition

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

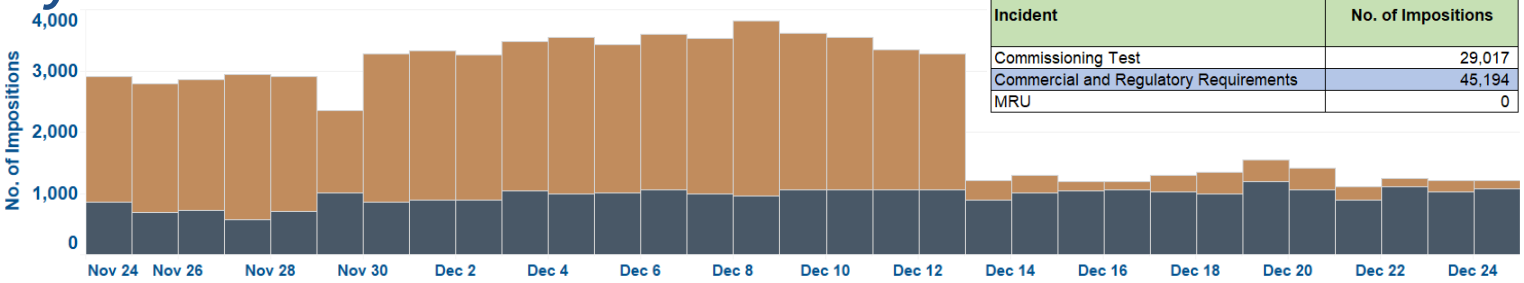
OC IMPOSITIONS

LUZON



Maximum	3,810	09 December
Average	2,473	
Minimum	1,114	22 December

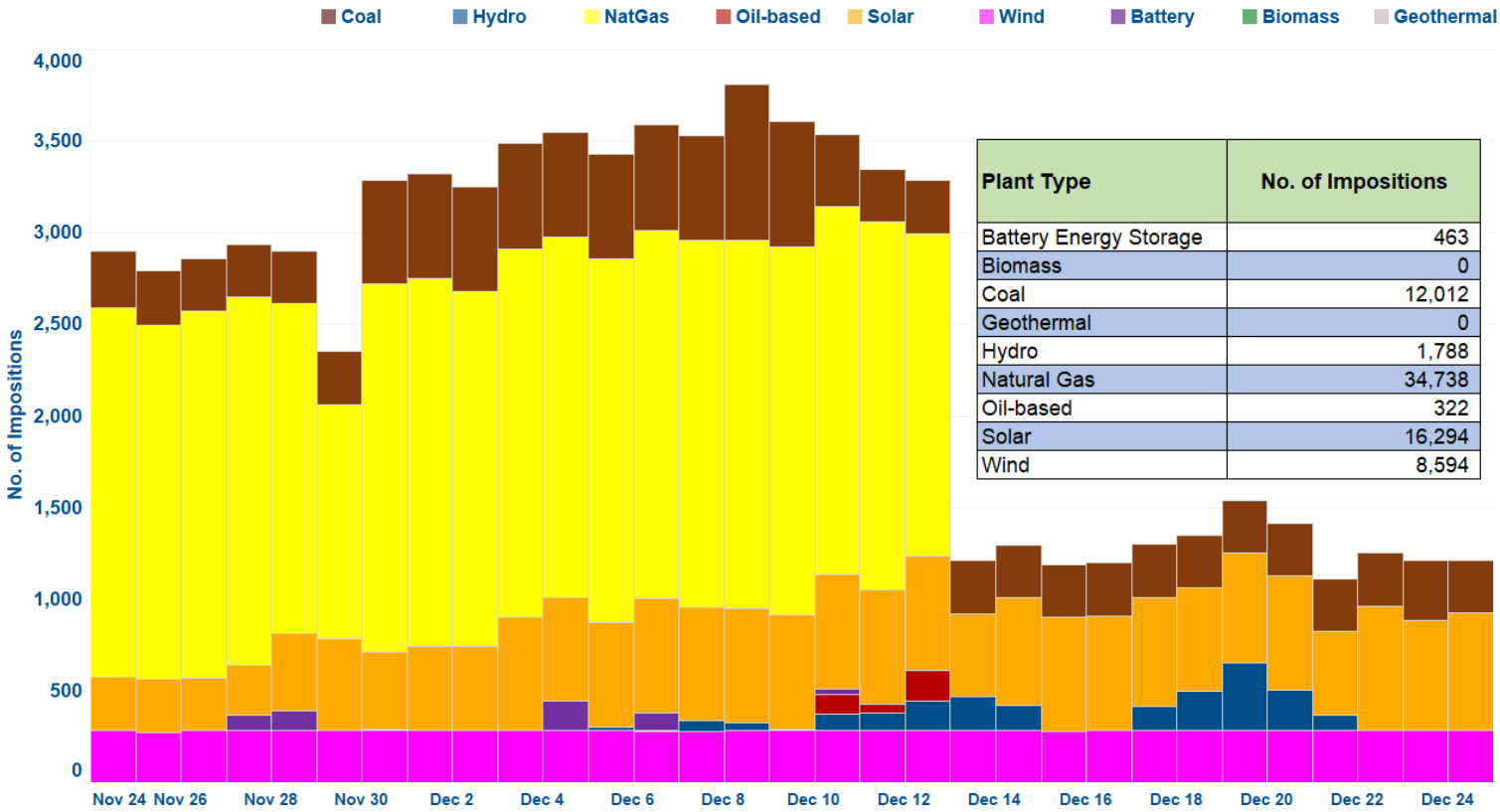
by incident



Incident	No. of Impositions
Commissioning Test	29,017
Commercial and Regulatory Requirements	45,194
MRU	0

Commissioning Test
Commercial and Regulatory Requirements
MRU

by plant type



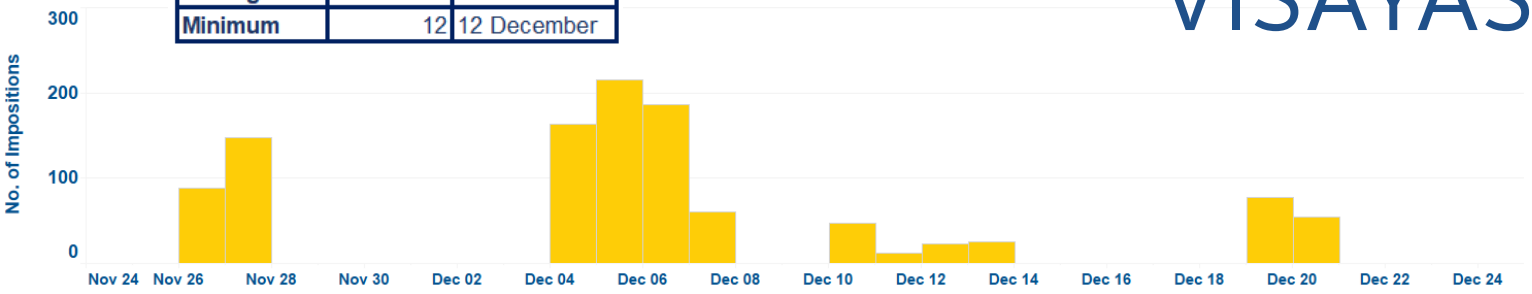
Plant Type	No. of Impositions
Battery Energy Storage	463
Biomass	0
Coal	12,012
Geothermal	0
Hydro	1,788
Natural Gas	34,738
Oil-based	322
Solar	16,294
Wind	8,594

Majority of the OC impositions accounted to **Luzon grid plants** were attributable to the conduct of **performance tests** of **natural gas plants** which lasted until 13 December 2023.

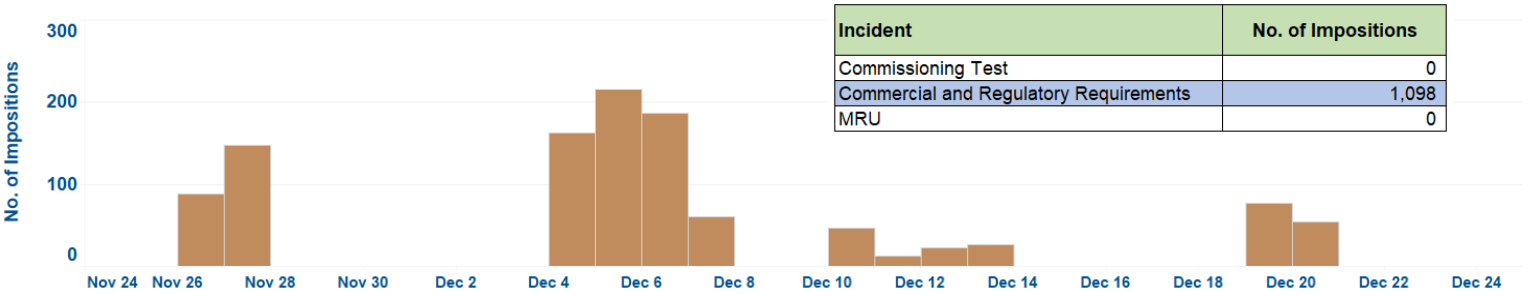
OC IMPOSITIONS

VISAYAS

Maximum	215	06 December
Average	92	
Minimum	12	12 December

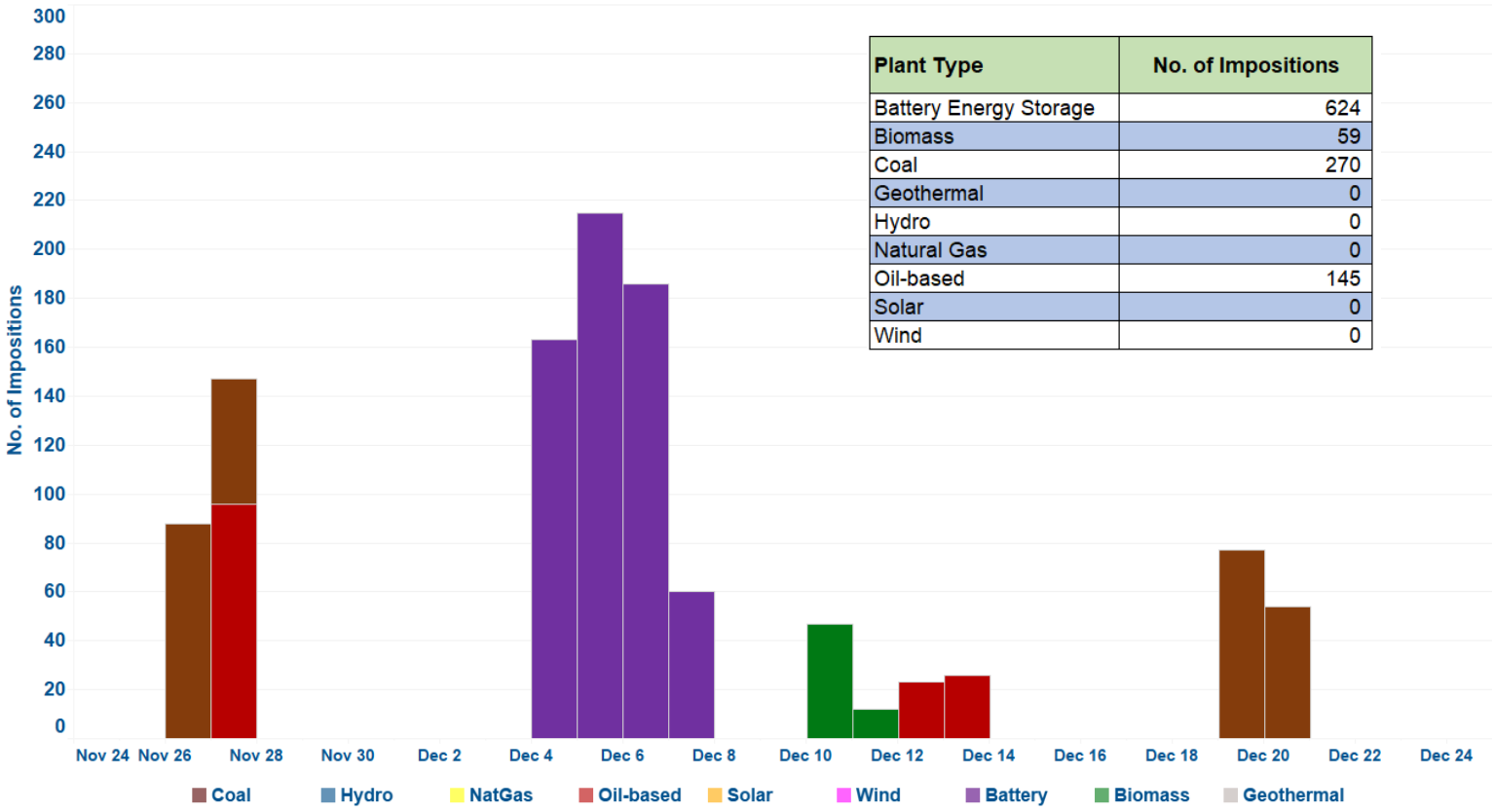


by incident



Incident	No. of Impositions
Commissioning Test	0
Commercial and Regulatory Requirements	1,098
MRU	0

by plant type



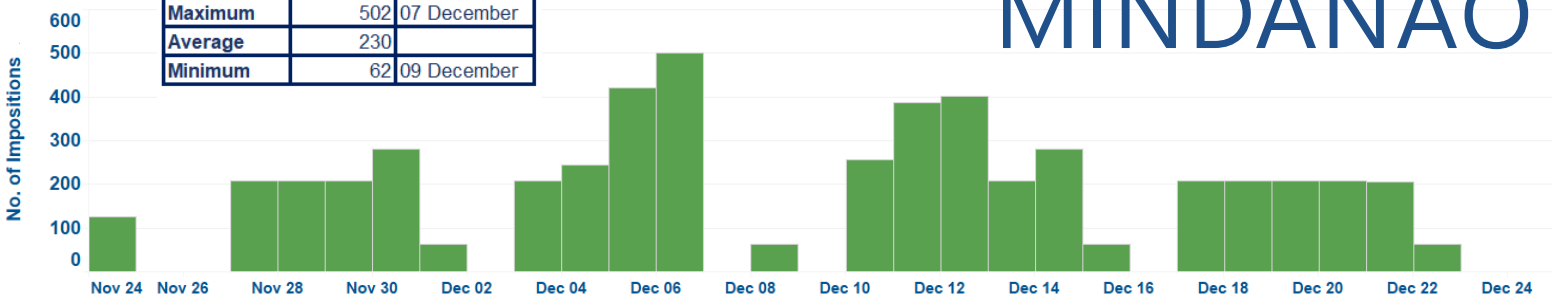
Plant Type	No. of Impositions
Battery Energy Storage	624
Biomass	59
Coal	270
Geothermal	0
Hydro	0
Natural Gas	0
Oil-based	145
Solar	0
Wind	0

Small shares of OC impositions were observed to be imposed in the **Visayas region**. Most of which were related to **Battery Energy Storage System (BESS)** due to the conduct of **ancillary service tests** on 05 to 08 December 2023.

OC IMPOSITIONS

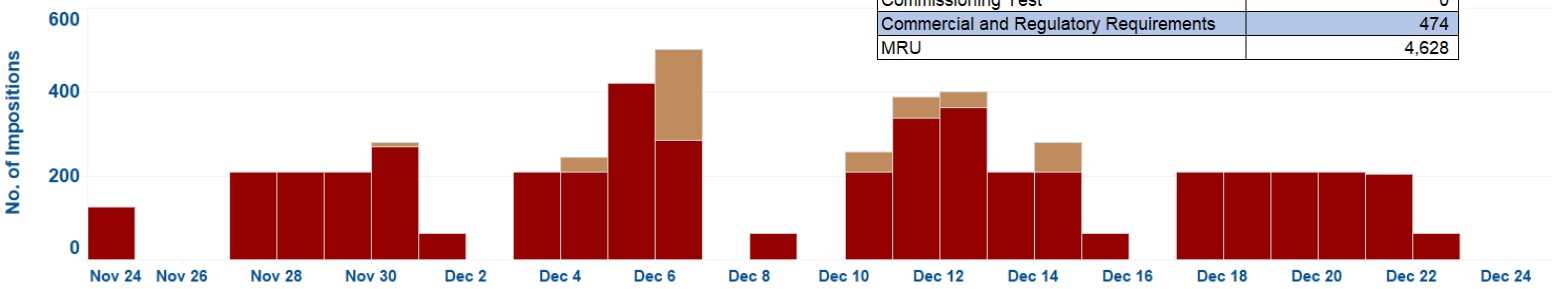
MINDANAO

Maximum	502	07 December
Average	230	
Minimum	62	09 December

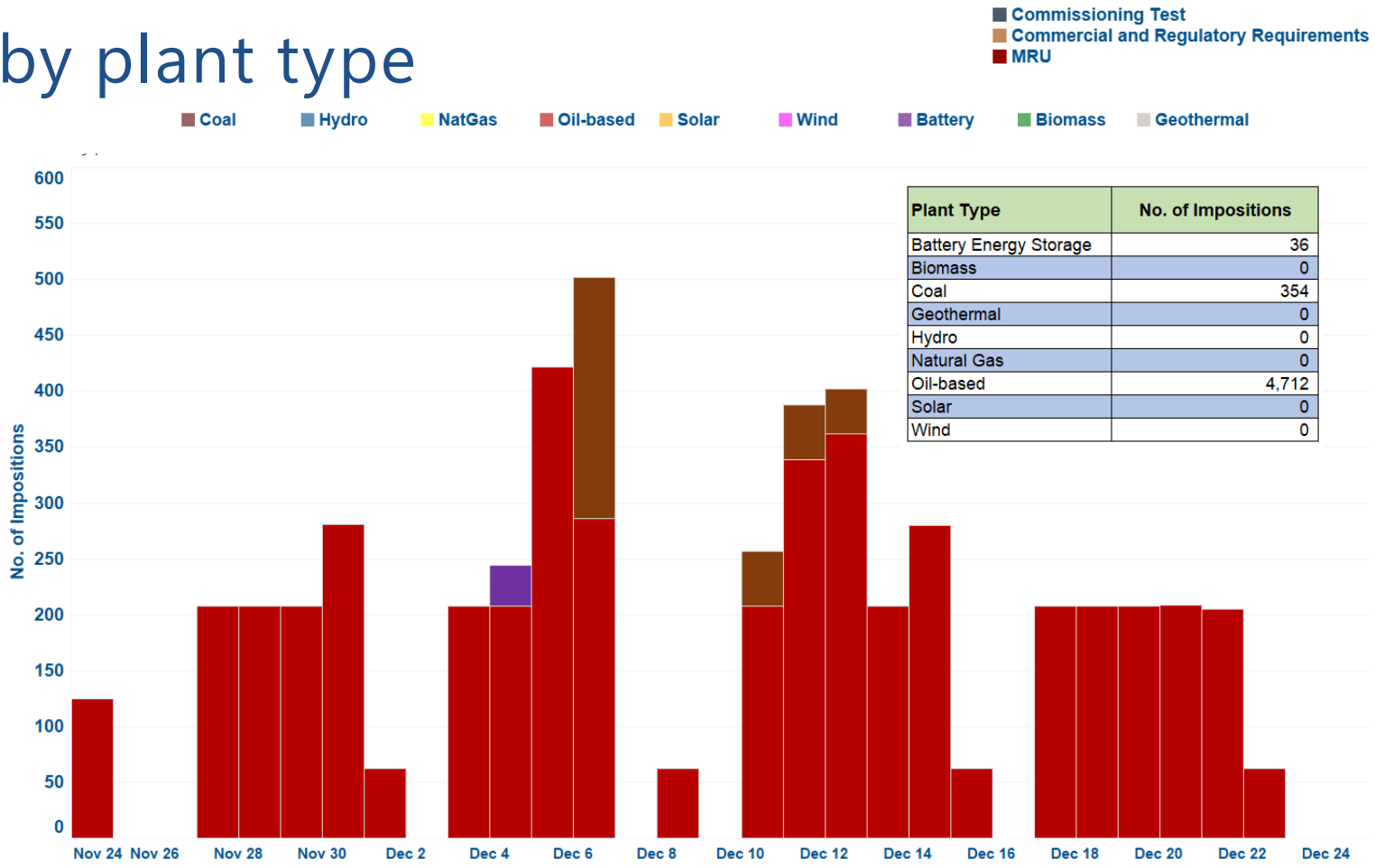


by incident

Incident	No. of Impositions
Commissioning Test	0
Commercial and Regulatory Requirements	474
MRU	4,628



by plant type

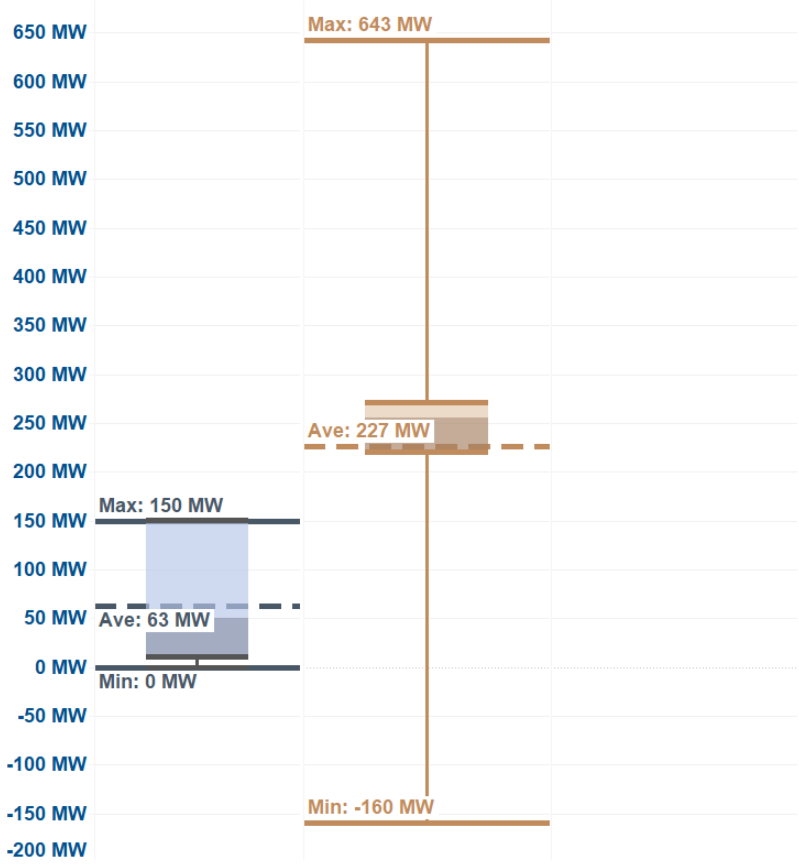


Plant Type	No. of Impositions
Battery Energy Storage	36
Biomass	0
Coal	354
Geothermal	0
Hydro	0
Natural Gas	0
Oil-based	4,712
Solar	0
Wind	0

In Mindanao, **oil-based** plant was dispatched **mostly (91% of the time) as MRU** during the December 2023 billing period to address system voltage requirement of the region. It was likewise observed that OC impositions decreased during the weekends and holidays.

LUZON

by incident



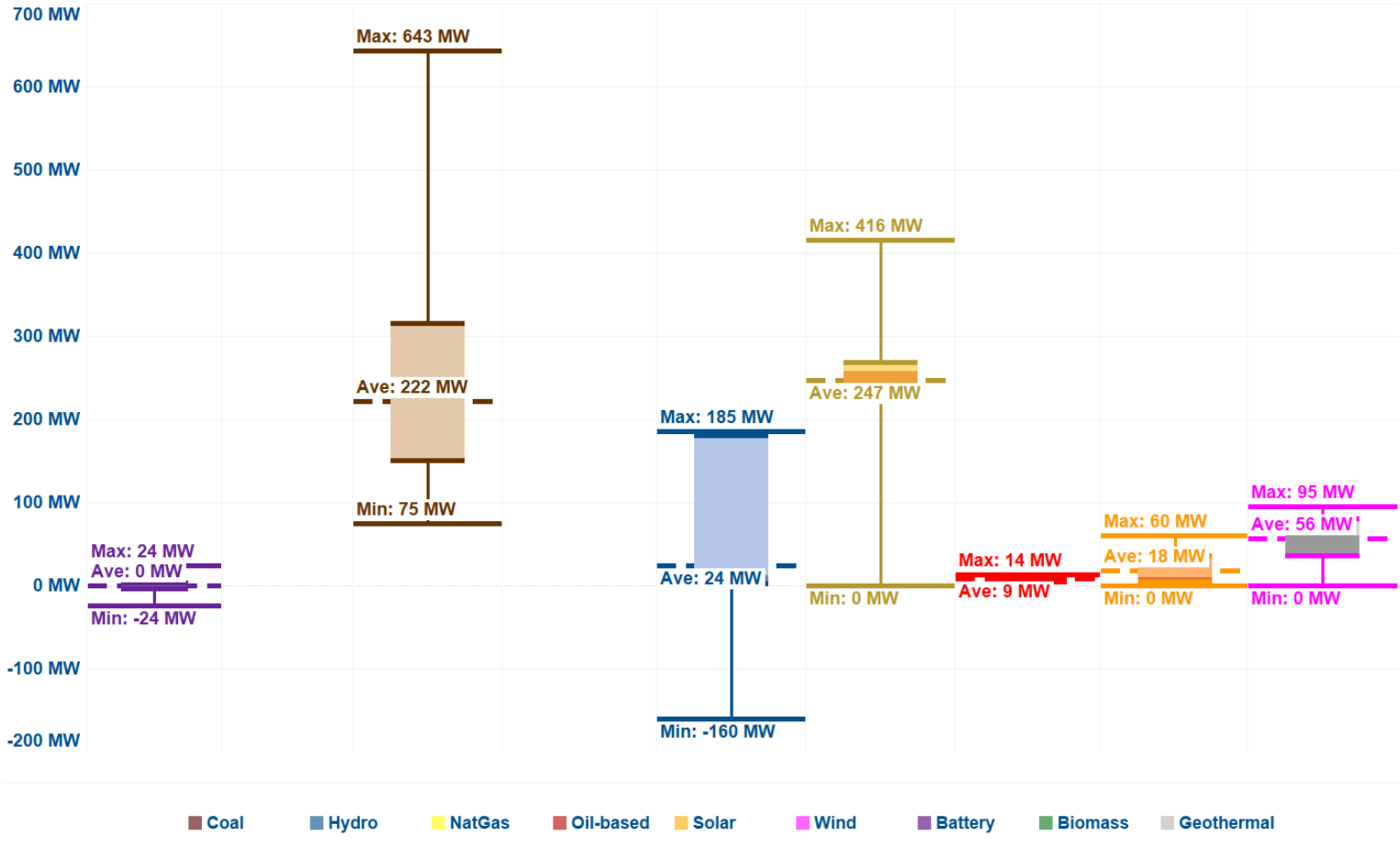
Incident	Average	Minimum	Maximum
Commissioning Test	63 MW	0 MW	150 MW
Commercial and Regulatory Requirements	227 MW	-160 MW	643 MW
MRU	-	-	-

The highest average MW scheduled in Luzon was at 227 MW due to conduct of commercial and regulatory requirements of natural gas plants.

Also, a hydro plant was scheduled with -160 MW due to its conduct of commercial and regulatory requirements.

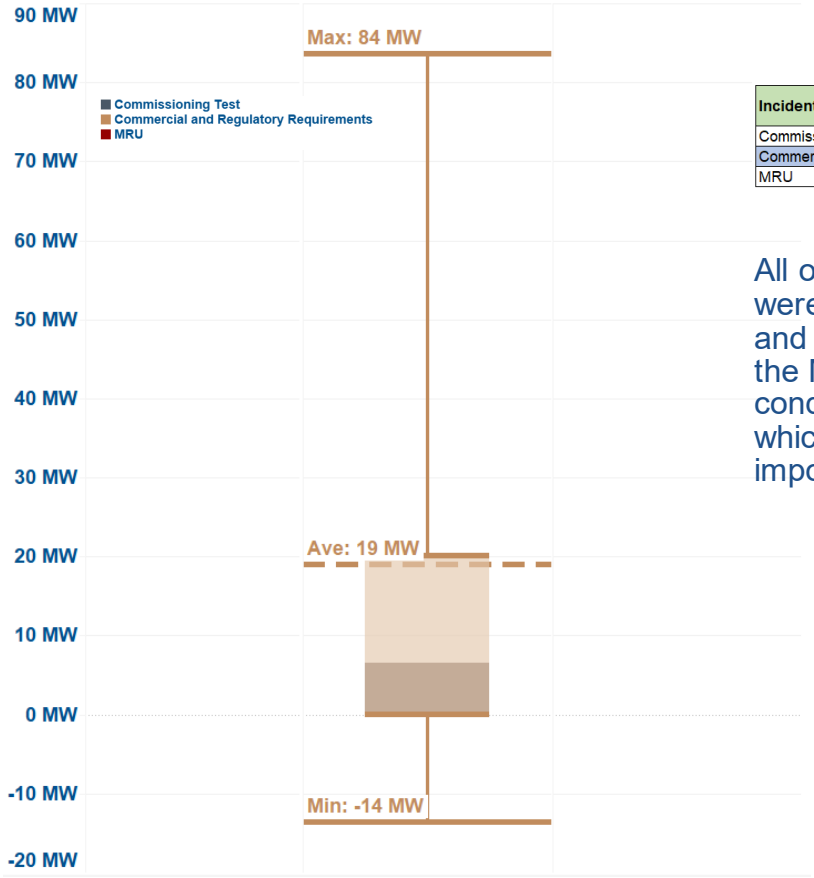
by plant type

Plant Type	Average	Minimum	Maximum
Battery Energy Storage	0 MW	-24 MW	24 MW



VISAYAS

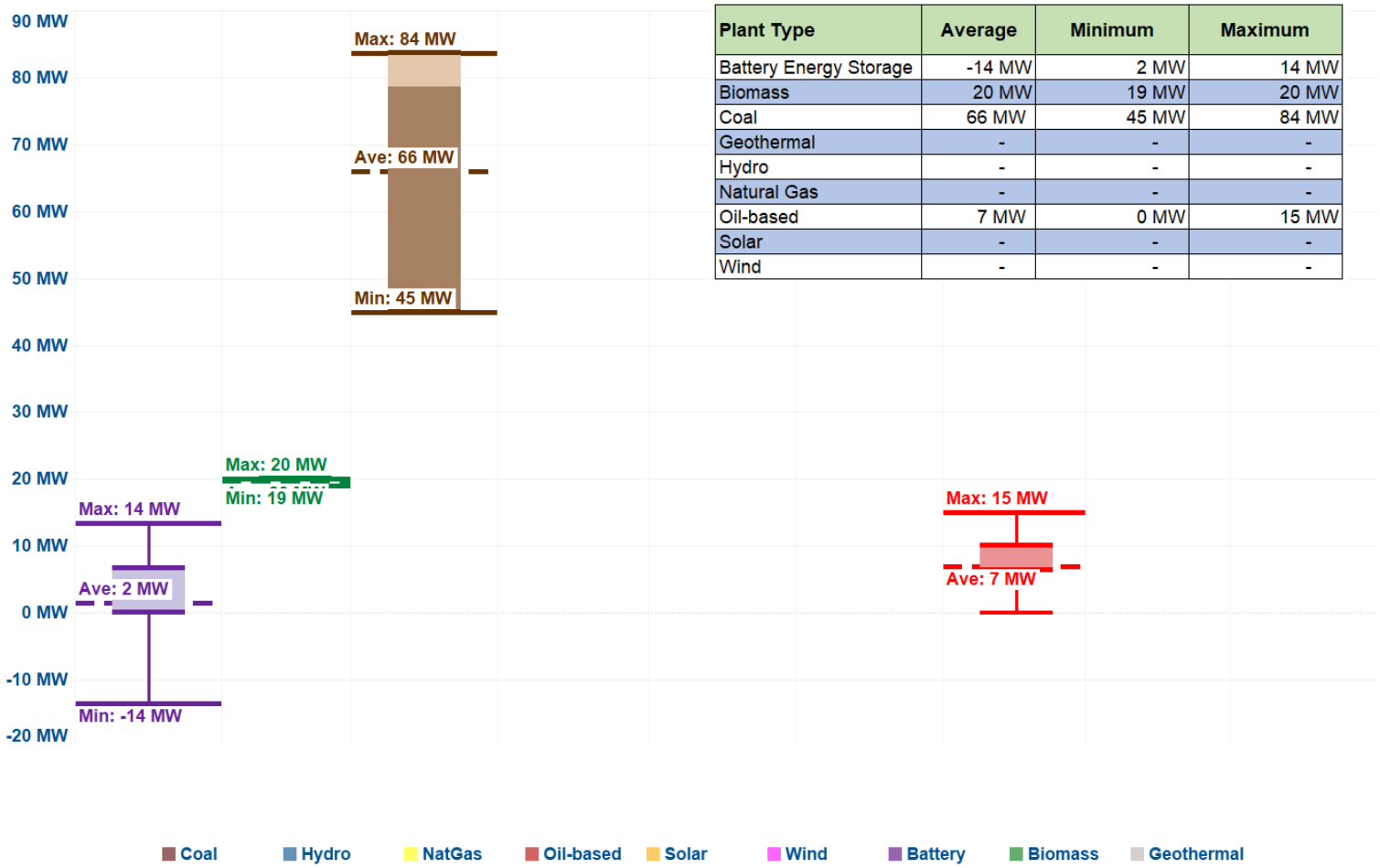
by incident



Incident	Average	Minimum	Maximum
Commissioning Test	-	-	-
Commercial and Regulatory Requirements	99 MW	0 MW	152 MW
MRU	-	-	-

All of the imposition related to Visayas plants were related to the performance of commercial and regulatory requirements test and majority of the MW scheduled was attributable to the conduct of ancillary service test of five (5) plants which is equivalent to 92% of the total impositions in the region.

by plant type

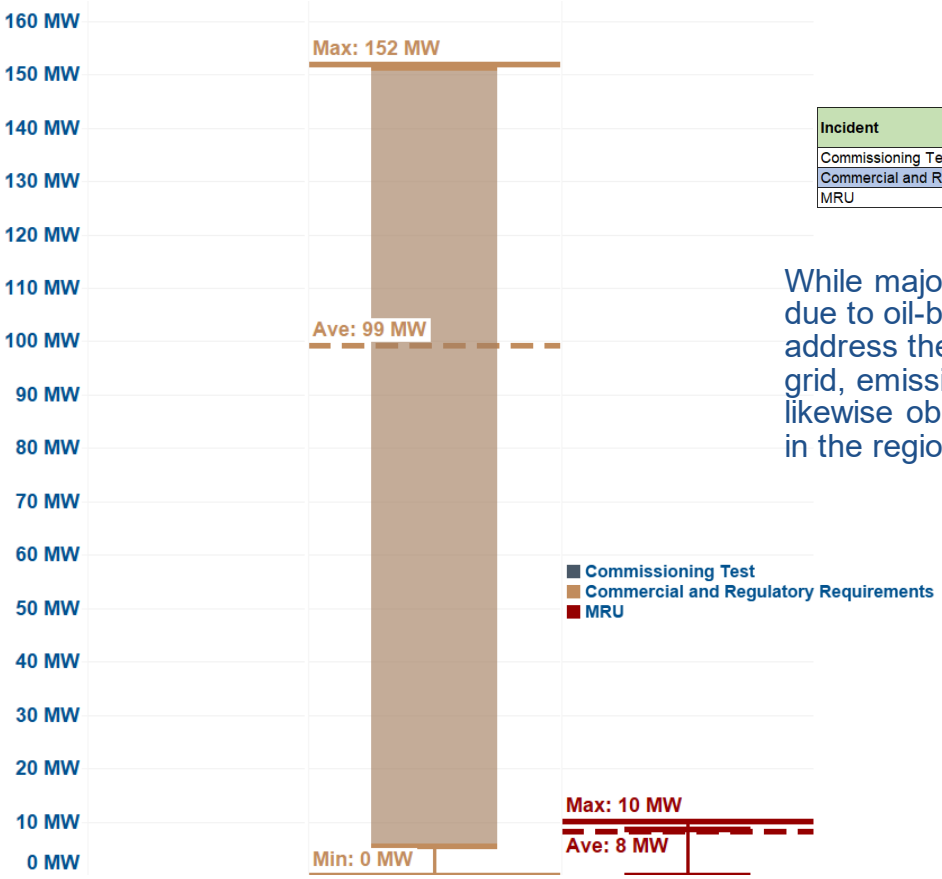


Plant Type	Average	Minimum	Maximum
Battery Energy Storage	-14 MW	2 MW	14 MW
Biomass	20 MW	19 MW	20 MW
Coal	66 MW	45 MW	84 MW
Geothermal	-	-	-
Hydro	-	-	-
Natural Gas	-	-	-
Oil-based	7 MW	0 MW	15 MW
Solar	-	-	-
Wind	-	-	-

MW SCHEDULES

MINDANAO

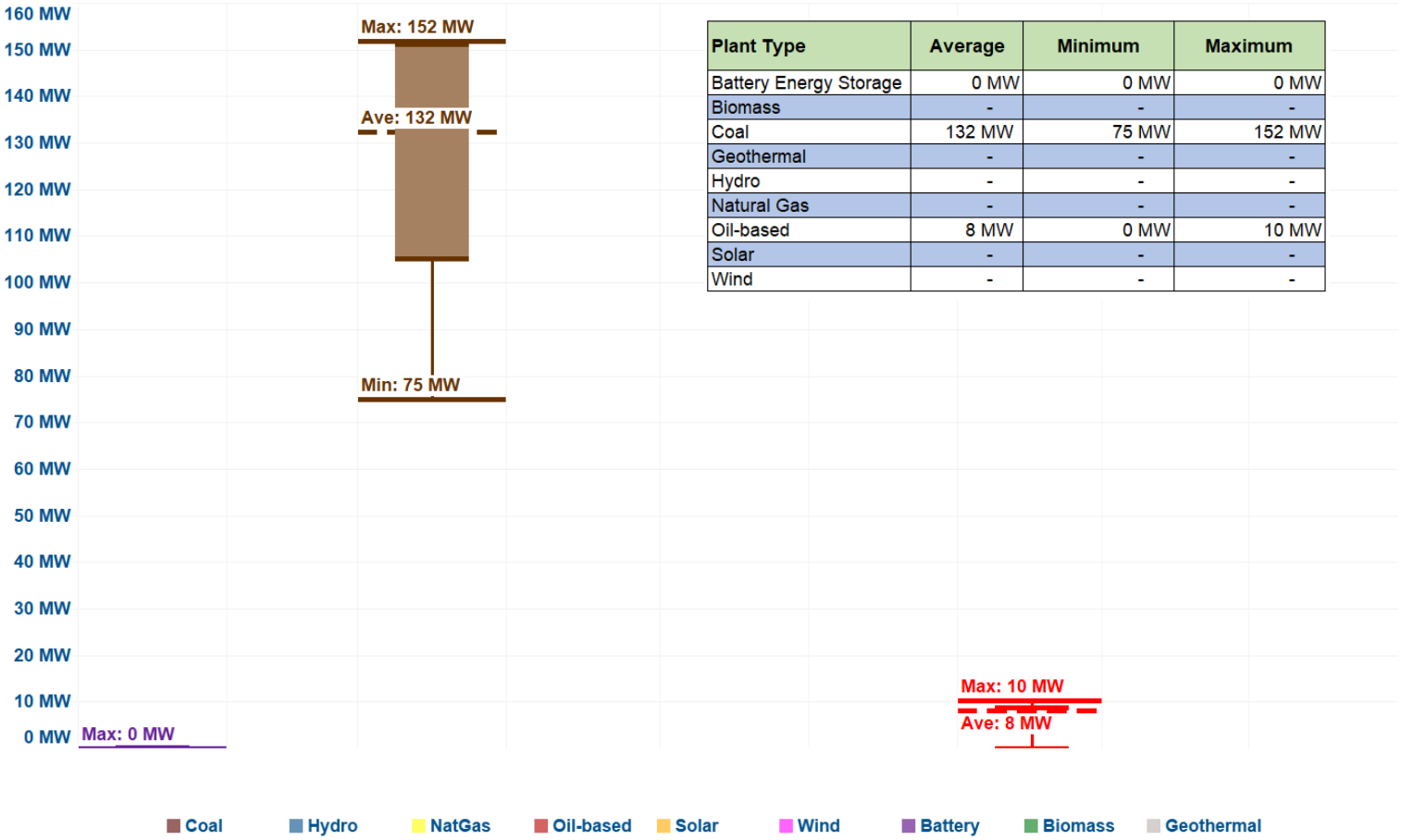
by incident



Incident	Average	Minimum	Maximum
Commissioning Test	-	-	-
Commercial and Regulatory Requirements	2 MW	0 MW	5 MW
MRU	8 MW	3 MW	9 MW

While majority of the imposition in Mindanao was due to oil-based plants dispatched as MRU to address the system voltage requirement in the grid, emission test and ancillary service test were likewise observed to be conducted by coal plants in the region.

by plant type

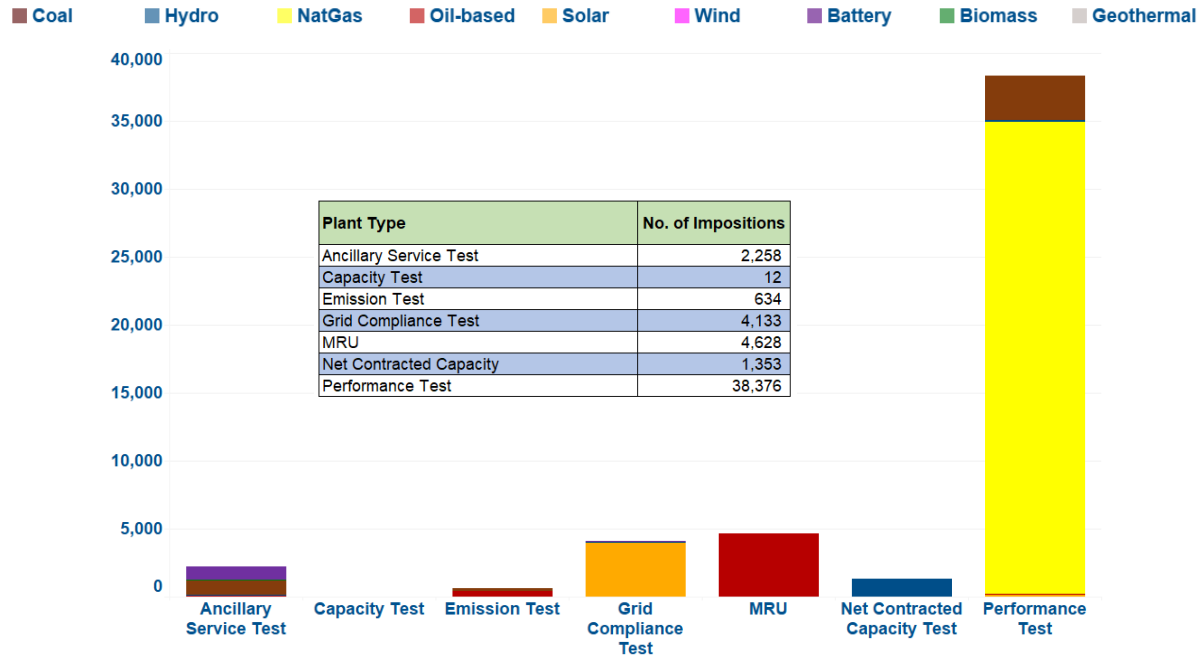


Plant Type	Average	Minimum	Maximum
Battery Energy Storage	0 MW	0 MW	0 MW
Biomass	-	-	-
Coal	132 MW	75 MW	152 MW
Geothermal	-	-	-
Hydro	-	-	-
Natural Gas	-	-	-
Oil-based	8 MW	0 MW	10 MW
Solar	-	-	-
Wind	-	-	-

OC IMPOSITIONS

by incident

(excluding commissioning test)

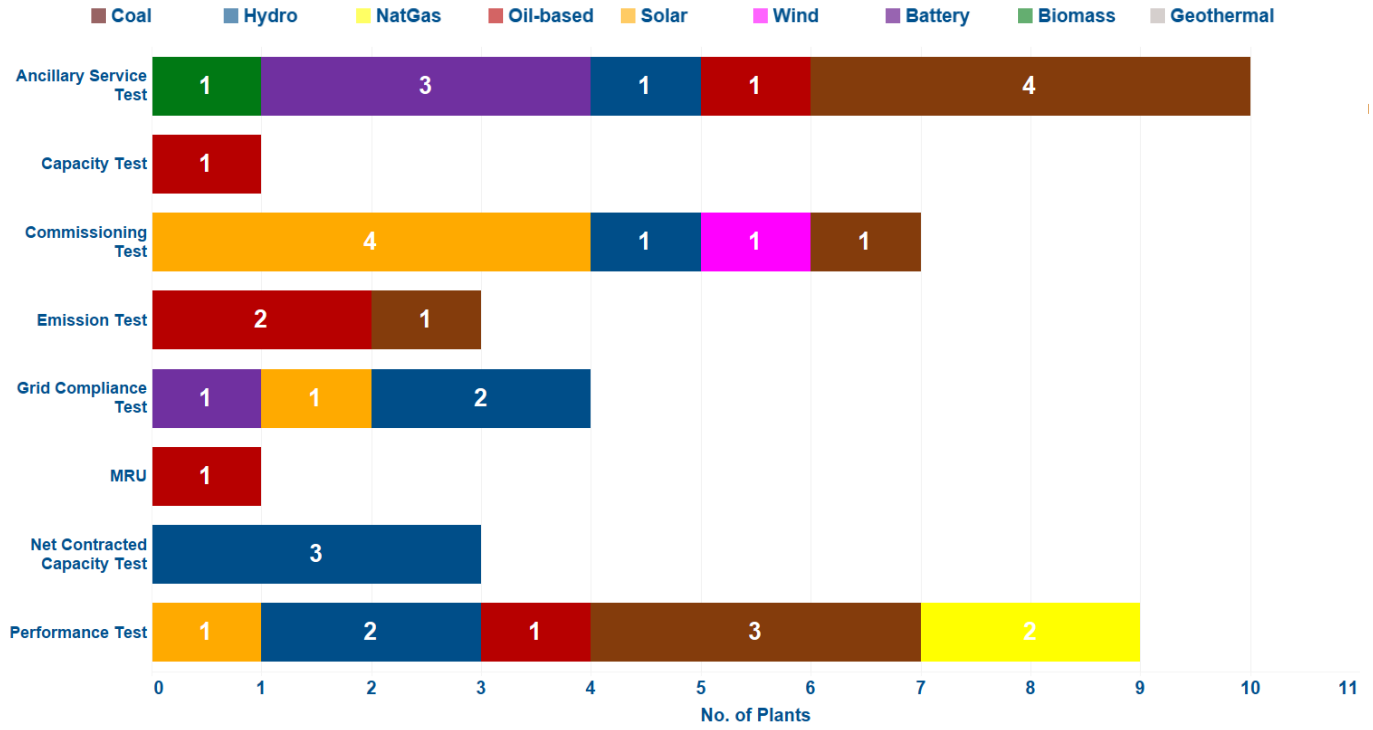


Plant Type	No. of Impositions
Ancillary Service Test	2,258
Capacity Test	12
Emission Test	634
Grid Compliance Test	4,133
MRU	4,628
Net Contracted Capacity	1,353
Performance Test	38,376

Picking up from the trend of the previous billing period, majority of impositions were imposed to natural gas plants related 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 grid compliance test of solar plants.

NUMBER OF PLANTS

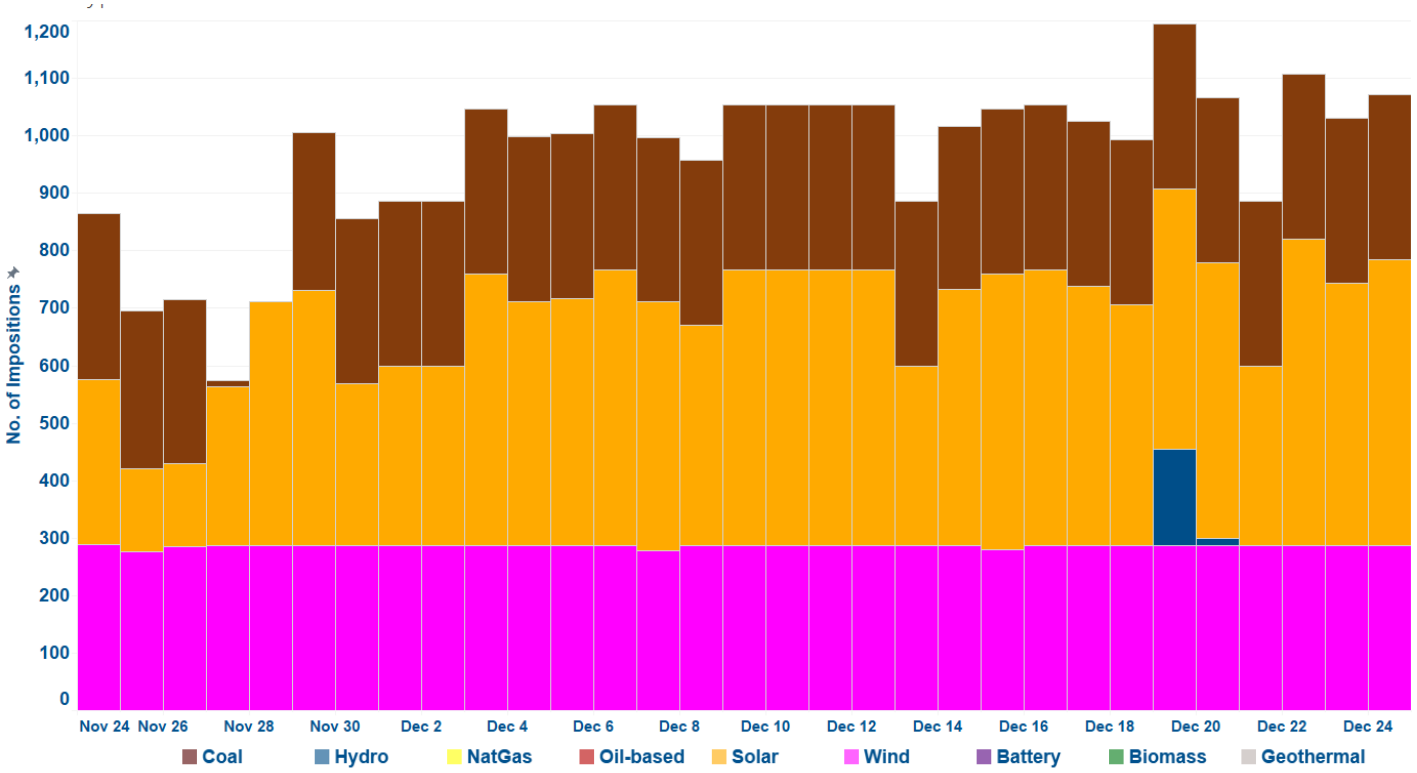
by incident



A total of thirty-eight (38) plants were imposed with over-riding constraints during the billing period, with ten (10) of them related to ancillary service tests. Following this, performance tests were imposed to nine (9) plants. Seven (7) plants conducted commissioning tests, mostly solar plants. Small shares from four (4) plants conducted grid compliance test, three (3) plants conducted emission test while the other three (3), all are hydro plants, conducted net contracted capacity test.

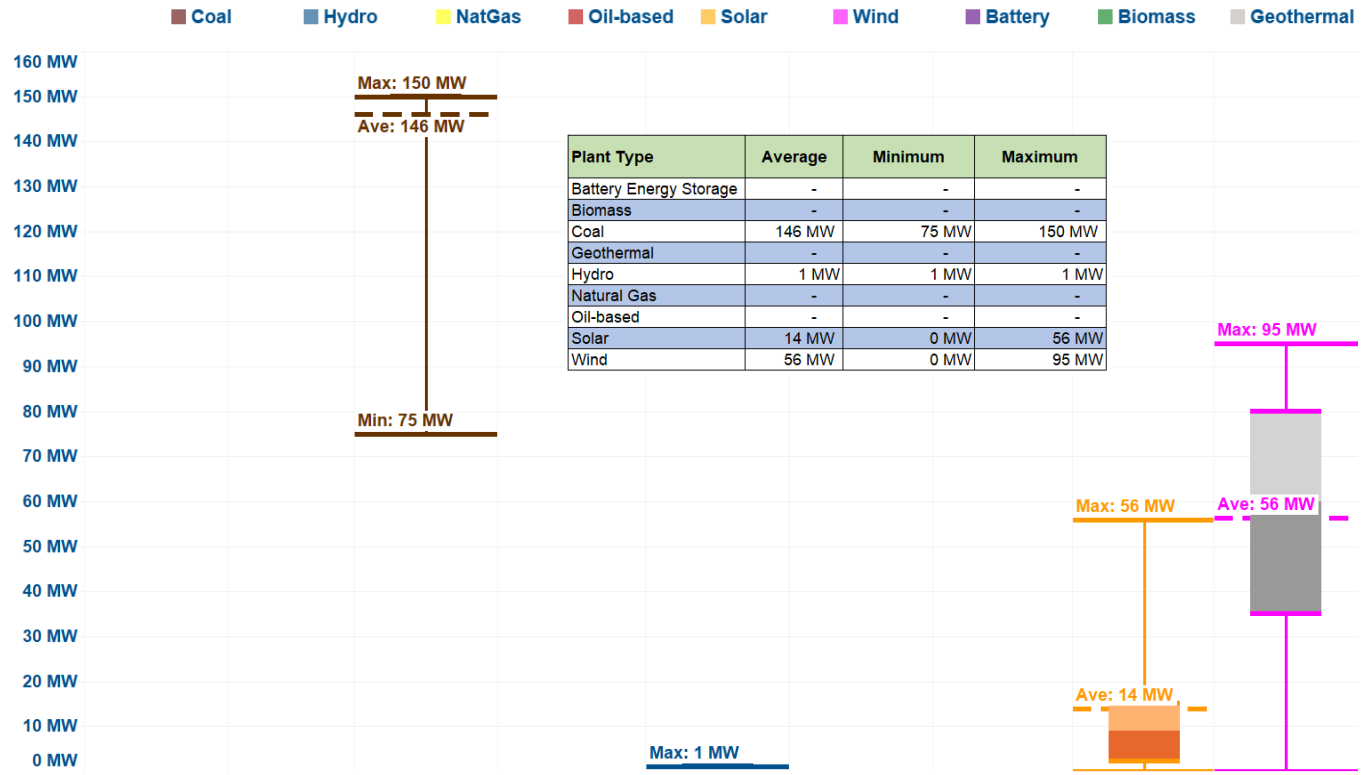
OC IMPOSITIONS

PLANTS UNDER COMMISSIONING TESTS



MW SCHEDULE

PLANTS UNDER COMMISSIONING TESTS



Plant Type	Average	Minimum	Maximum
Battery Energy Storage	-	-	-
Biomass	-	-	-
Coal	146 MW	75 MW	150 MW
Geothermal	-	-	-
Hydro	1 MW	1 MW	1 MW
Natural Gas	-	-	-
Oil-based	-	-	-
Solar	14 MW	0 MW	56 MW
Wind	56 MW	0 MW	95 MW

In terms of the number of impositions, renewable plants such as solar and wind plants experienced the highest number of OC related to commissioning tests during the billing period, accounting to twenty-six percent (26%) of the total impositions.

The coal plant, boasting a substantial capacity, had the highest scheduled MW. In contrast, renewable energy such as wind and solar plants exhibited varying MW schedules throughout the billing 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
Bataan Battery Energy Storage System (ESS)	Battery	0.5
Cagayan North Solar Power Plant	Solar	115
Casecnan Hydro Electric Power Plant	Hydro	165
Cayanga-Bugallon Solar Power Plant	Solar	75.1
GNPower Dinginin Coal Plant - Unit 2	Coal	668
Magat Battery Energy Storage System	Battery	24
Mariveles Coal Fired Thermal Power Plant Unit 1	Coal	316
Mariveles Coal-fired Thermal Power Plant Unit 2	Coal	150
Orion Solar Power Plant	Solar	16.2
Pantabangan Hydro Electric Power Plant Unit 2	Hydro	60
San Marcelino Solar Power Project	Solar	326.4
Trust Solar Power Plant	Solar	15.4
Navotas Bunker C-Fired Diesel Power Plant Power Barge 1 / Mobile 3	Oil-Based	63.8
Navotas Bunker C-Fired Diesel Power Plant Power Barge 2 / Mobile 4	Oil-Based	51.5
Navotas Bunker C-Fired Diesel Power Plant Power Barge 3 / Mobile 5	Oil-Based	55.2
Navotas Bunker C-Fired Diesel Power Plant Power Barge 4 / Mobile 6	Oil-Based	52
Botocan Hydro Electric Power Plant	Hydro	20.8
Caliraya Hydro Electric Power Plant	Hydro	28
Kalayaan Hydro Electric Power Plant 1	Hydro	183
Kalayaan Hydro Electric Power Plant 2	Hydro	183
Kalayaan Hydro Electric Power Plant 3	Hydro	184.6
Kalayaan Hydro Electric Power Plant 4	Hydro	185
Lower Labayat Hydroelectric Power Plant	Hydro	1.5
Pagbilao 3 Power Plant	Coal	420
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

[1] As of 29 December 2023

Plant/Unit Name	Plant Type	Registered Capacity (MW)[1]
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
VISAYAS		
Isabel Modular Diesel Power Plant Sector 1	Oil-Based	10
Isabel Modular Diesel Power Plant Sector 2	Oil-Based	10.1
Isabel Modular Diesel Power Plant Sector 3	Oil-Based	15.1
Isabel Modular Diesel Power Plant Sector 4	Oil-Based	10.2
Isabel Modular Diesel Power Plant Sector 5	Oil-Based	15.1
CEDC Coal-Fired Thermal Power Plant Unit 1	Coal	82
Sangi Coal Fired Power Plant	Coal	82
46.0MW Kabankalan Bagasse-Fired Biomass Power Plant	Biomass	20
23.316 MW Ubay Battery Energy Storage System (BESS)	Battery	20
Nabas Diesel Power Plant	Oil-Based	6.4
MINDANAO		
Bunker-C Fired Diesel Power Plant Unit 1	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 10	Oil-Based	10.2
GNPK's Coal Fired Power Plant Unit 1	Coal	151.9
GNPK's Coal Fired Power Plant Unit 2	Coal	151
Bunker C. Fired Diesel Power Plant	Oil-Based	10.4
Villanueva Battery Energy Storage System	Battery	20
Bunker C-Fired Diesel Power Plant	Oil-Based	13

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