MONTHLY OVER-RIDING CONSTRAINTS HIGHLIGHTS

26 March to 25 April 2024

SUMMARY OF OBSERVATIONS

- The 25.9% increase in imposition during the billing period was primarily due to the commencement of commissioning tests of four (4) plants in Luzon and two (2) in Visayas. Most of the imposition in the Visayas region were due to commissioning test of geothermal plants.
    - Commissioning tests made up 83% of the total imposition.

- In Mindanao, majority of the Over-riding Constraints (OC) imposition were due to the dispatch of plants as Must-Run Unit (MRU). This was followed by conventional plants conducting their commercial and regulatory requirement testing.

AT A GLANCE

Total Over-riding Constraints Imposition

106,114

▲ 25.9%
increase from previous billing period

LUZON
90,085

Solar plants had the highest no. of OC imposition

Natural gas plants, on average, had the largest mw scheduled due to performance test

Most imposition were due to commissioning test of various plants

VISAYAS
7,326

Geothermal plants had the highest no. of OC imposition

Coal plants, on average, had the largest MW scheduled due to emission test

Most imposition were due to the conduct of commissioning test of geothermal plant

MINDANAO
8,703

Oil-based plants had the highest no. of OC imposition

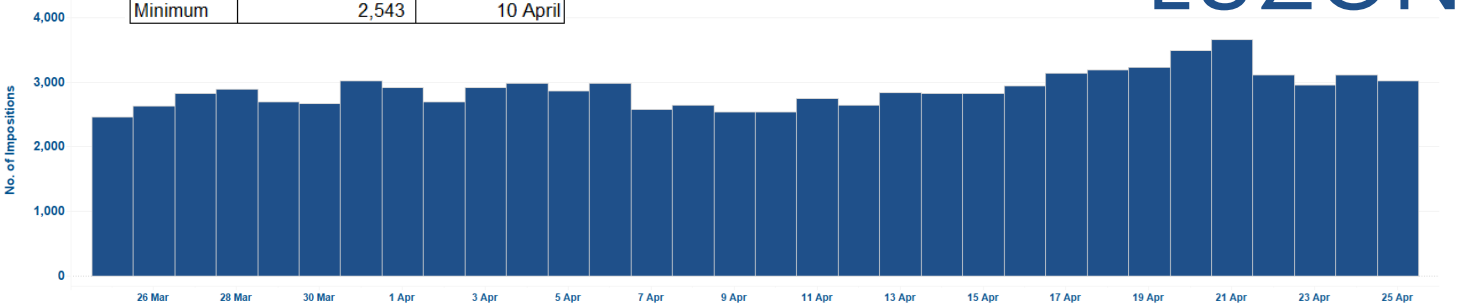
Coal plants, on average, had the largest mw scheduled due to capability test

Most imposition were due to oil-based plants dispatched as Must-Run Unit

OC IMPOSITION

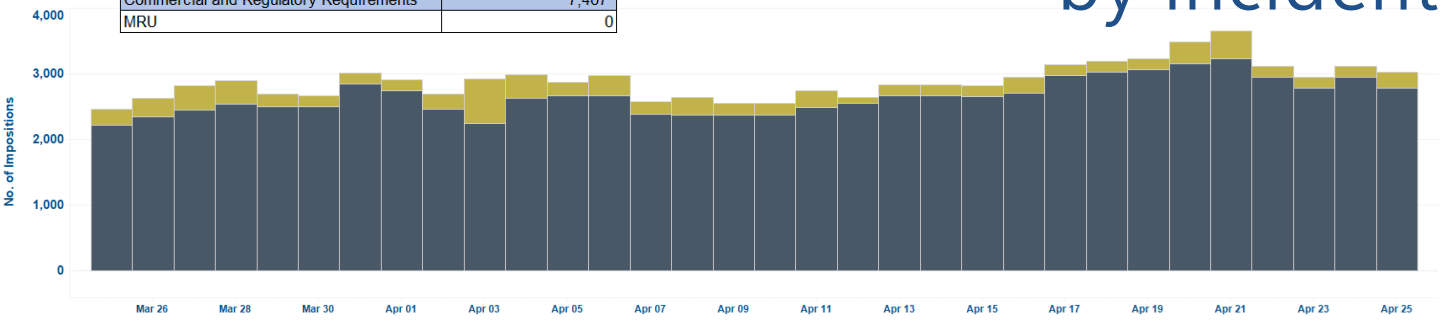
LUZON

	No. of Impositions	Date
Maximum	3,657	21 April
Average	2,906	
Minimum	2,543	10 April

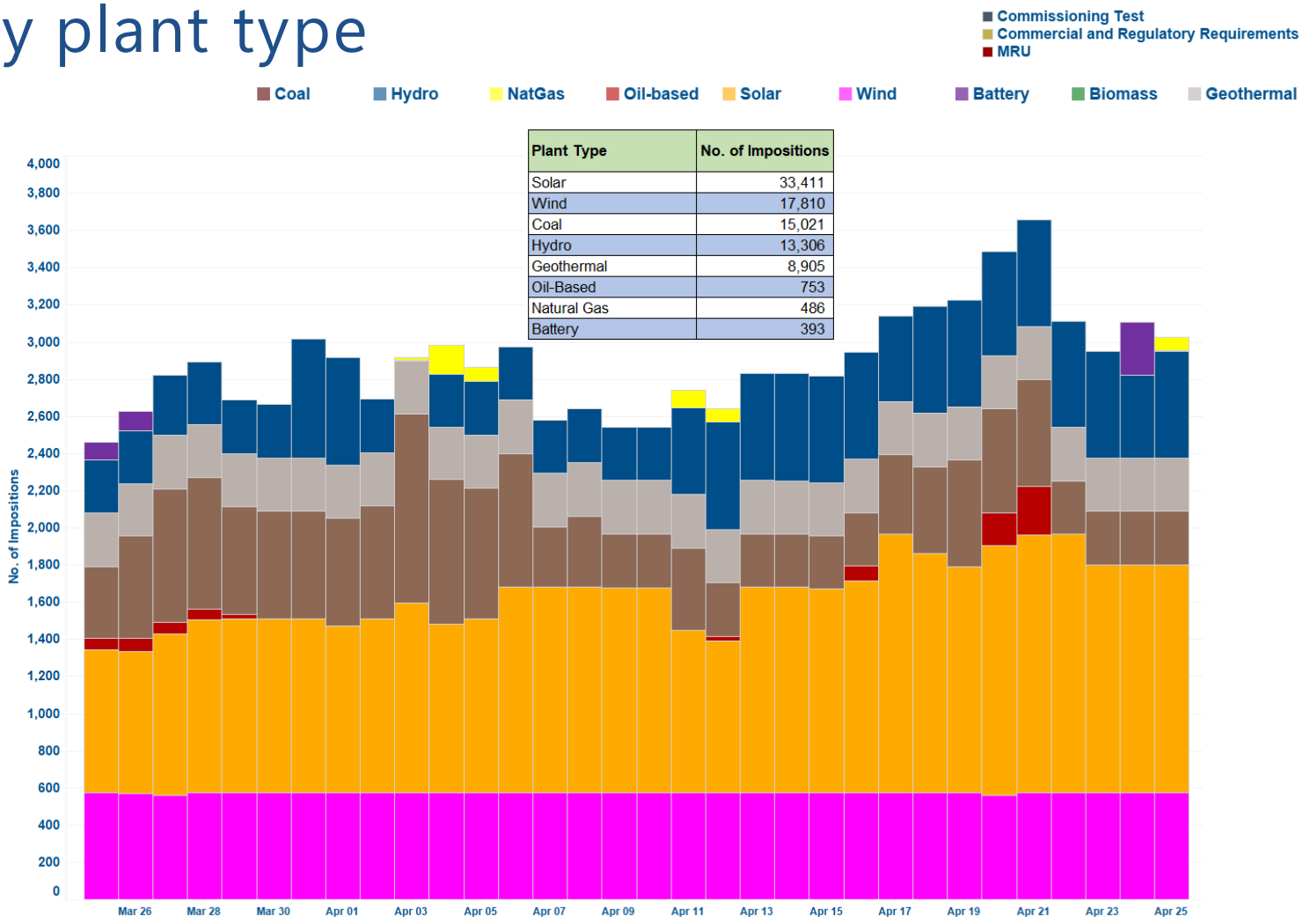


by incident

Incident	No. of Impositions
Commissioning Test	82,678
Commercial and Regulatory Requirements	7,407
MRU	0



by plant type



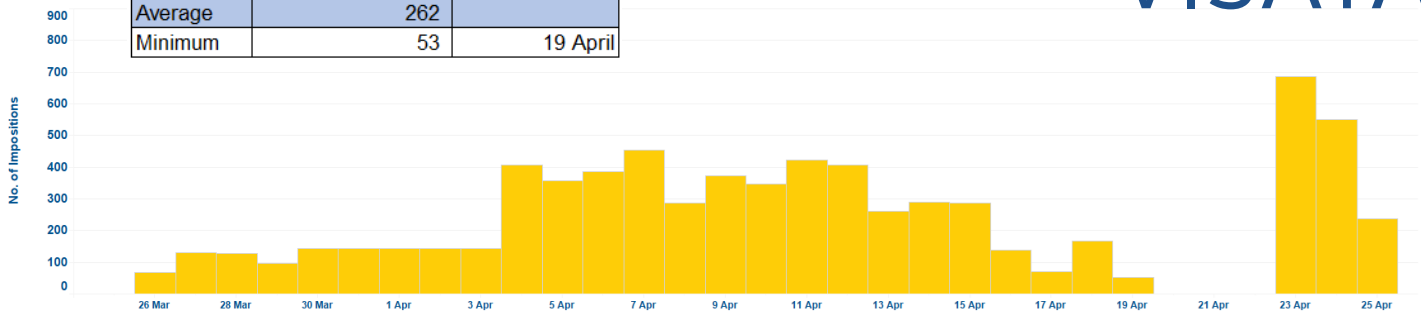
Plant Type	No. of Impositions
Solar	33,411
Wind	17,810
Coal	15,021
Hydro	13,306
Geothermal	8,905
Oil-Based	753
Natural Gas	486
Battery	393

Most of the OC imposition in Luzon grid plants were due to the conduct of **commissioning tests of Battery Energy Storage System (BESS), solar, wind, coal, geothermal, and hydro plants** during the billing period.

OC IMPOSITION

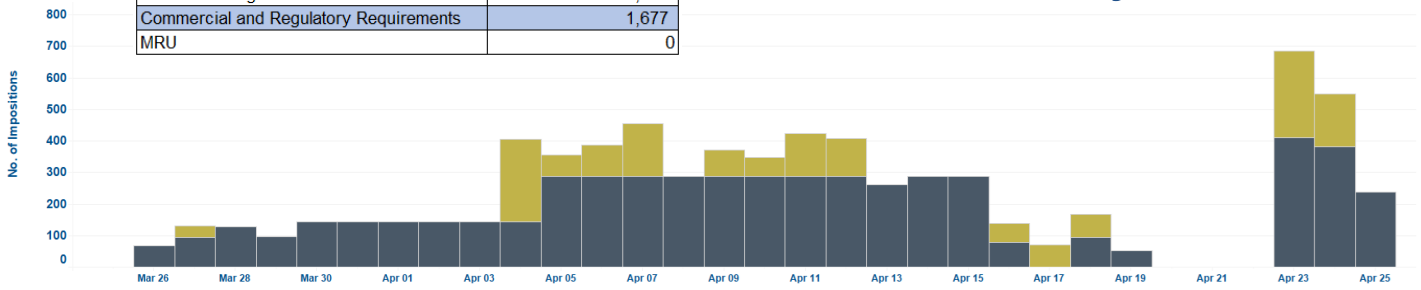
VISAYAS

	No. of Impositions	Date
Maximum	686	23 April
Average	262	
Minimum	53	19 April



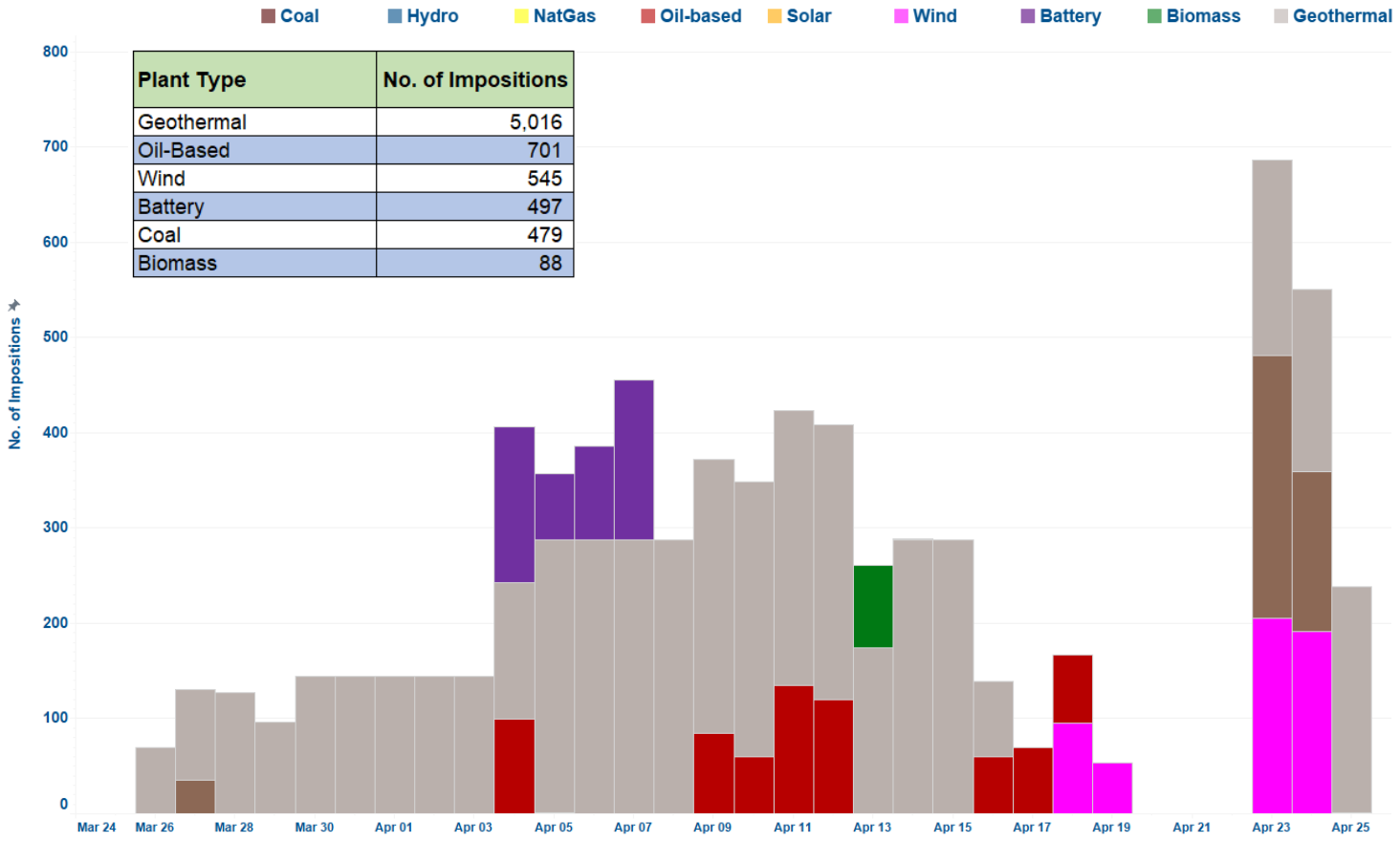
by incident

Incident	No. of Impositions
Commissioning Test	5,649
Commercial and Regulatory Requirements	1,677
MRU	0



by plant type

Plant Type	No. of Impositions
Geothermal	5,016
Oil-Based	701
Wind	545
Battery	497
Coal	479
Biomass	88

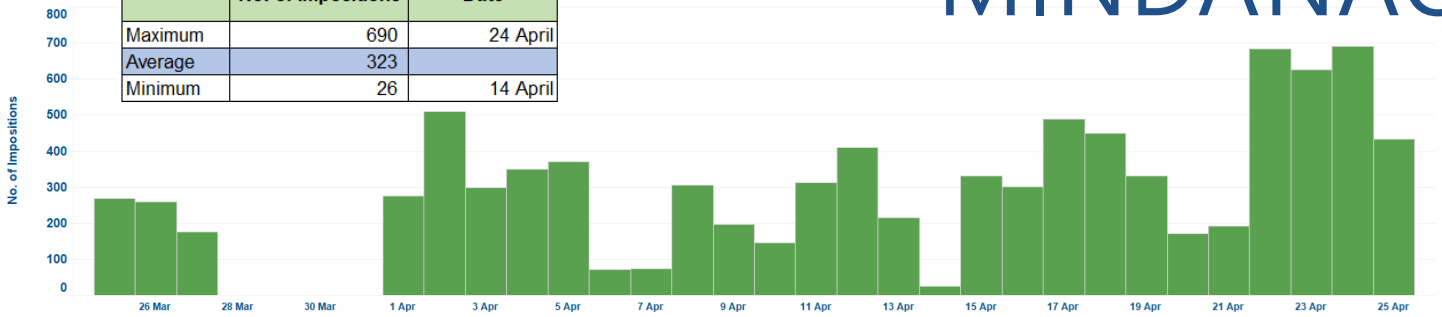


The highest number of observed imposition in the Visayas region was attributable to the **commissioning tests** of **geothermal plants**. **Emission tests** of **coal plants** during 23-24 April 2024 accounted for second-highest imposition during the billing period followed by **ancillary service test** of **BESS** from 04-07 April 2024.

OC IMPOSITION

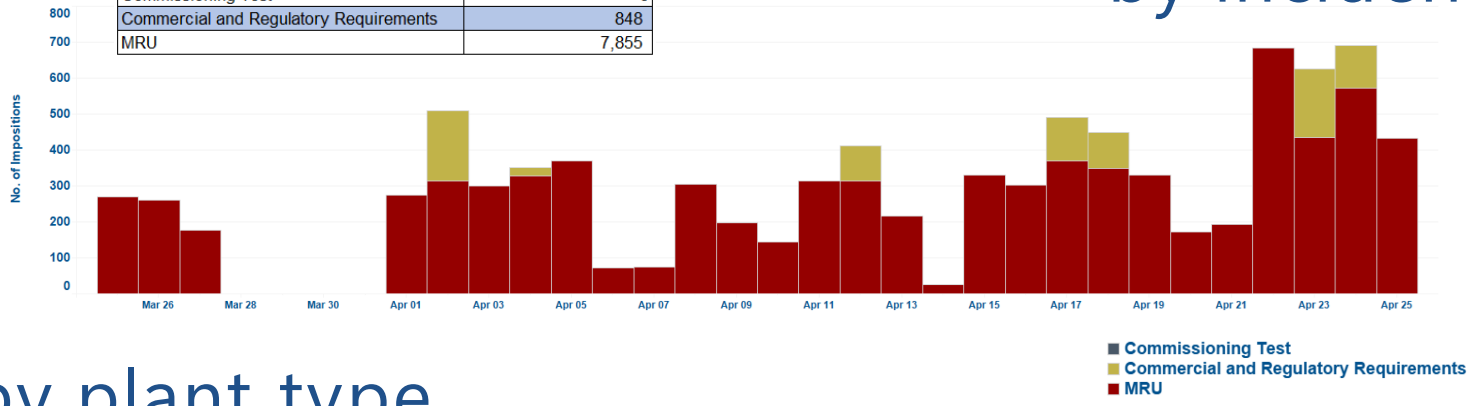
MINDANAO

	No. of Impositions	Date
Maximum	690	24 April
Average	323	
Minimum	26	14 April



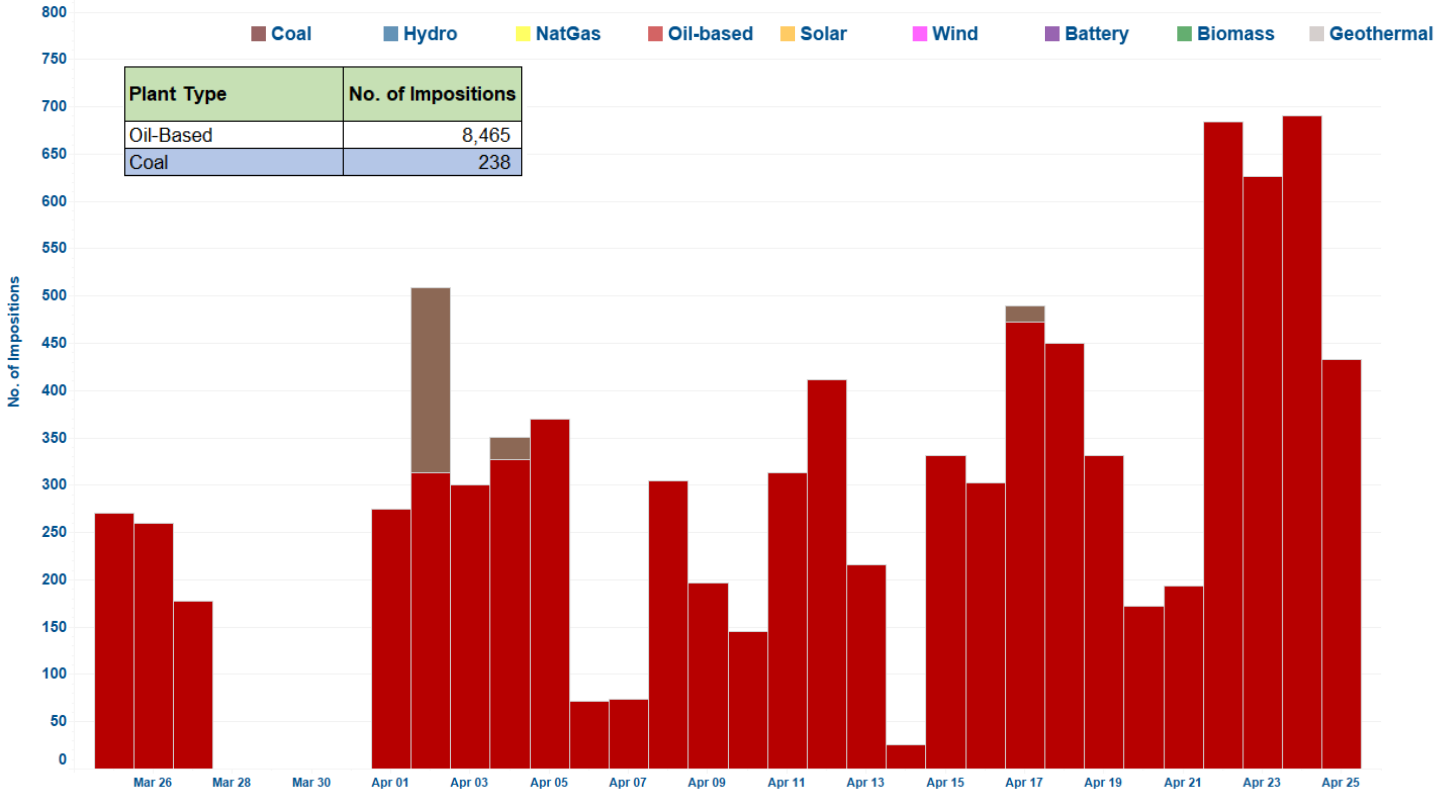
by incident

Incident	No. of Impositions
Commissioning Test	0
Commercial and Regulatory Requirements	848
MRU	7,855



by plant type

Plant Type	No. of Impositions
Oil-Based	8,465
Coal	238



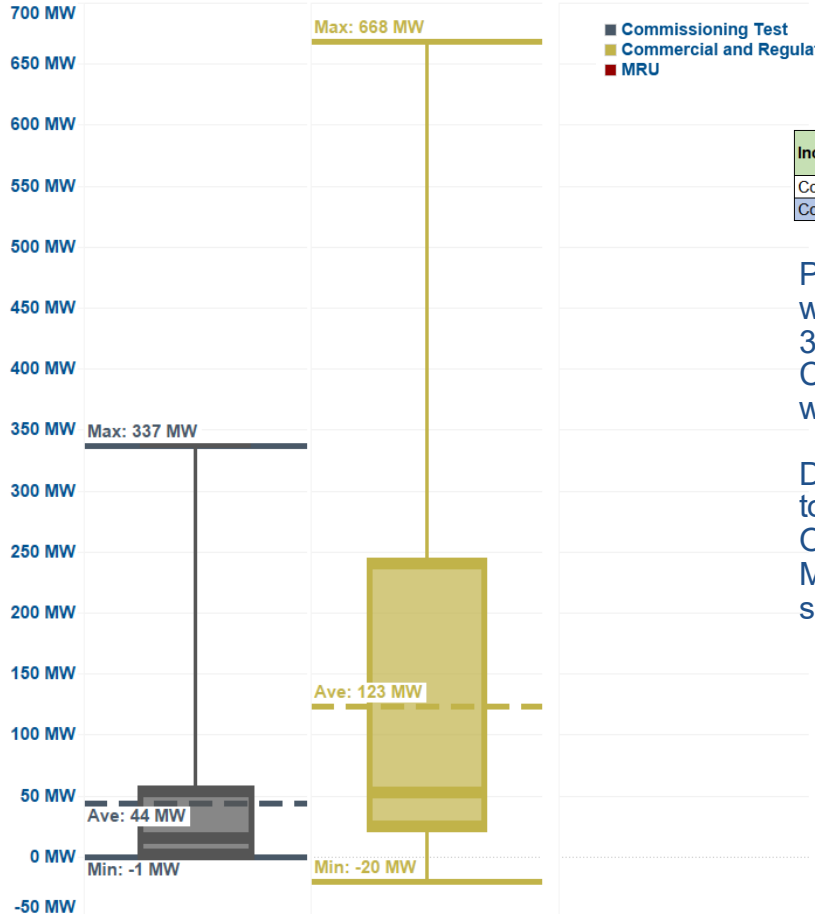
In Mindanao, **oil-based plants dispatched as MRU** were attributable to most imposition during the billing period. Dip in plants dispatched as MRU were observed to occur during weekends, when demand becomes relatively low.

Emission test of a **coal plant** on 02 April 2024 was also observed in Mindanao Region.

MW SCHEDULE

LUZON

by incident

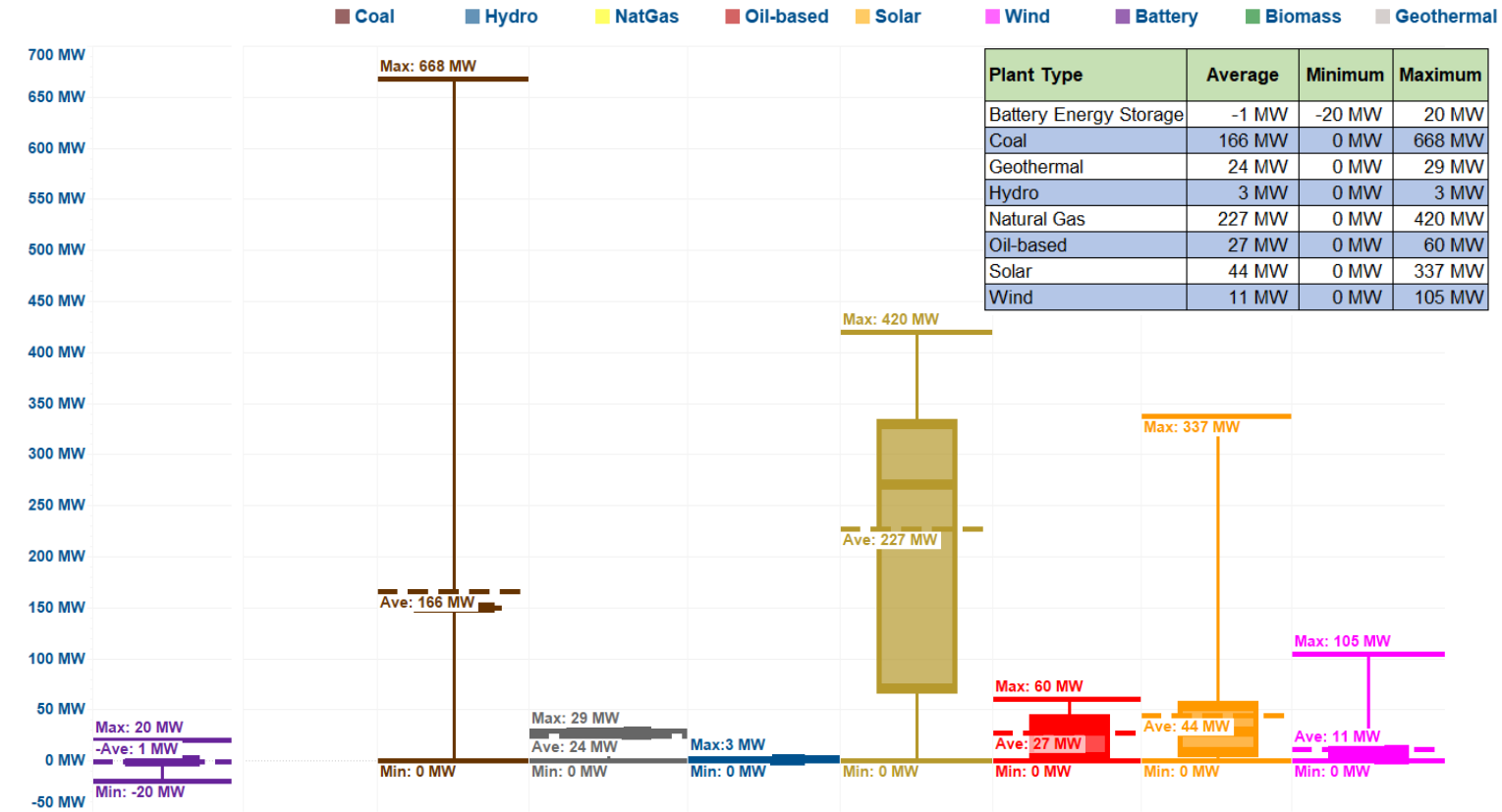


Incident	Average	Minimum	Maximum
Commissioning Test	44 MW	-1 MW	337 MW
Commercial and Regulatory Requirements	123 MW	-20 MW	668 MW

Plants in Luzon undergoing commissioning tests were scheduled at an average of 44 MW, peaking at 337 MW attributable to solar plants during the day. Commercial and regulatory requirement testing were mostly scheduled at an average of 123 MW.

Despite the maximum MW scheduled reaching up to 668 MW, which was scheduled on coal plants, OC imposition was typically scheduled at a lower MW level most of the time. This was evident in coal, solar, and wind plants.

by plant type

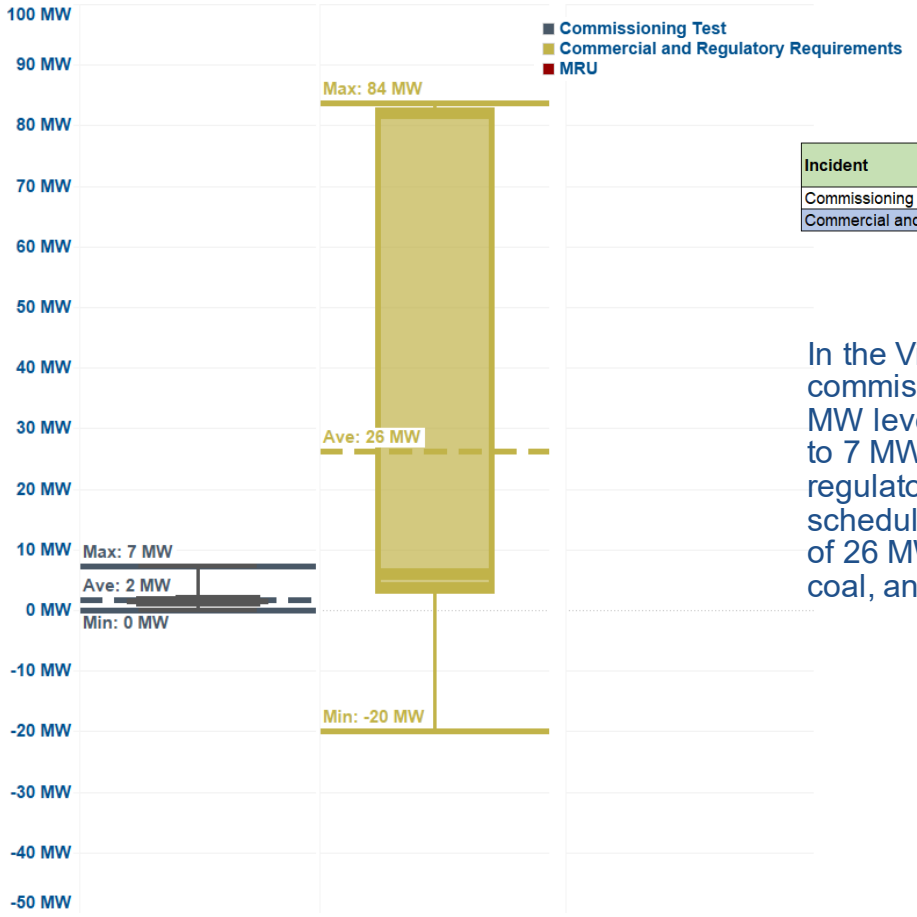


Plant Type	Average	Minimum	Maximum
Battery Energy Storage	-1 MW	-20 MW	20 MW
Coal	166 MW	0 MW	668 MW
Geothermal	24 MW	0 MW	29 MW
Hydro	3 MW	0 MW	3 MW
Natural Gas	227 MW	0 MW	420 MW
Oil-based	27 MW	0 MW	60 MW
Solar	44 MW	0 MW	337 MW
Wind	11 MW	0 MW	105 MW

MW SCHEDULE

VISAYAS

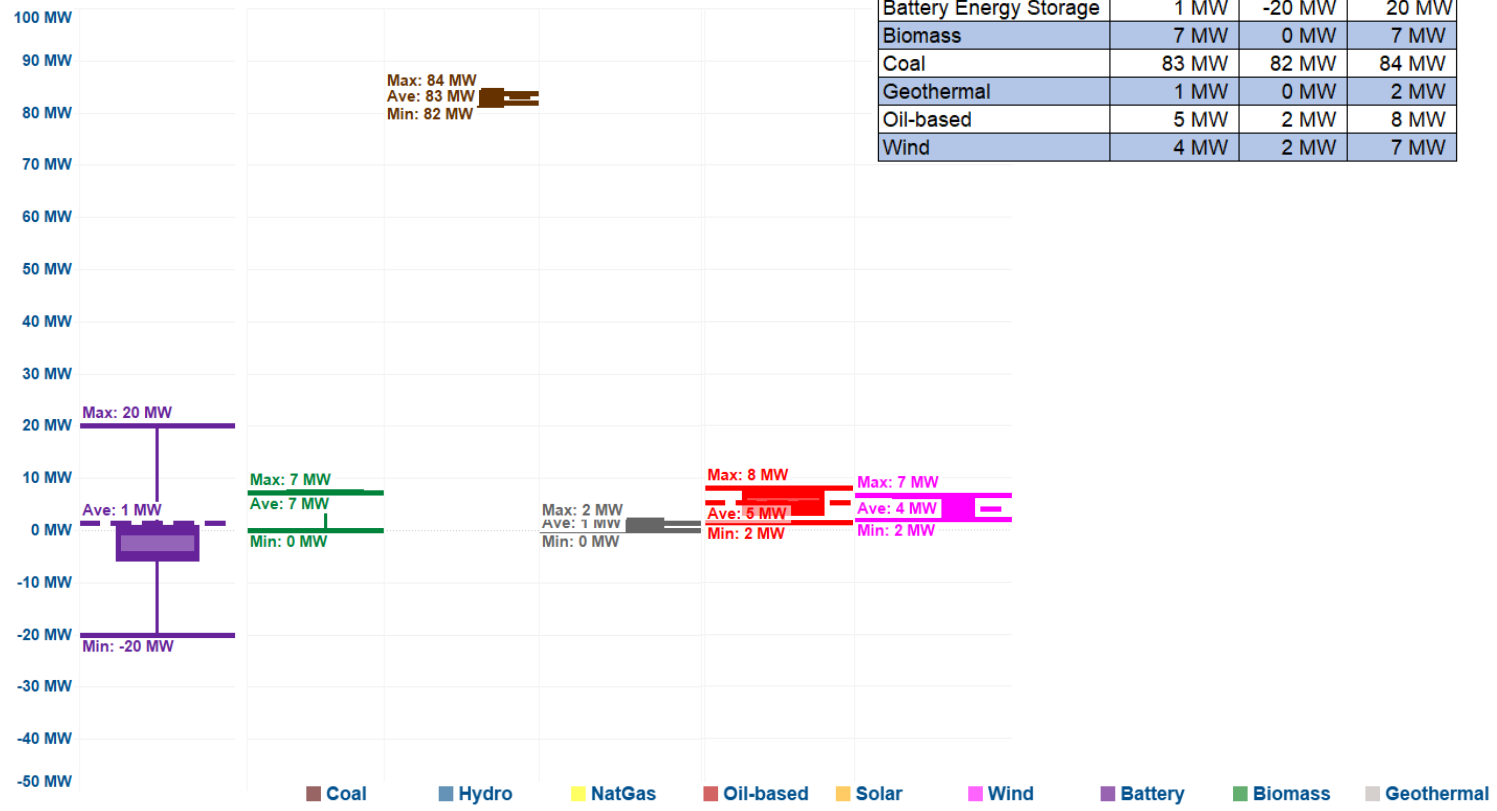
by incident



Incident	Average	Minimum	Maximum
Commissioning Test	2 MW	0 MW	7 MW
Commercial and Regulatory Requirements	26 MW	-20 MW	84 MW

In the Visayas region, OC imposition related to commissioning tests were scheduled at a low MW level, averaging at 2 MW and reaching up to 7 MW. Meanwhile, commercial and regulatory requirements were frequently scheduled between 0-84 MW, with an average of 26 MW. This was accounted for by BESS, coal, and oil-based plants.

by plant type

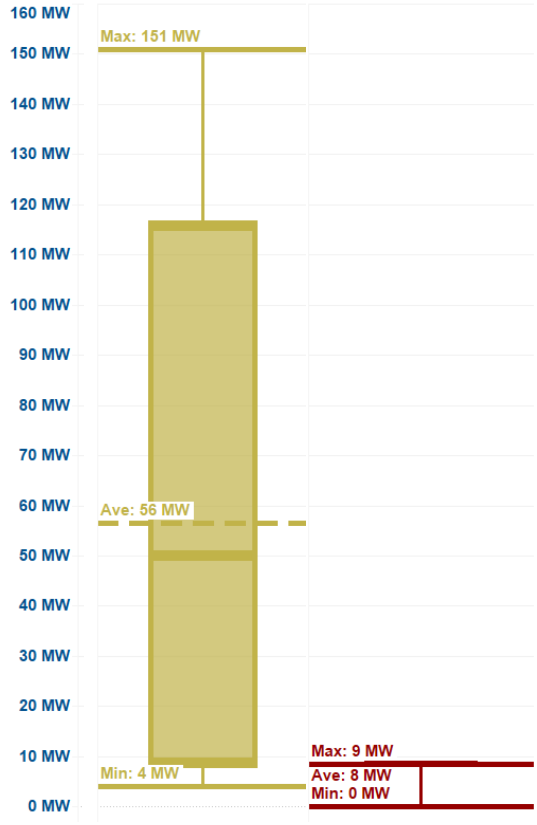


Plant Type	Average	Minimum	Maximum
Battery Energy Storage	1 MW	-20 MW	20 MW
Biomass	7 MW	0 MW	7 MW
Coal	83 MW	82 MW	84 MW
Geothermal	1 MW	0 MW	2 MW
Oil-based	5 MW	2 MW	8 MW
Wind	4 MW	2 MW	7 MW

MW SCHEDULE

MINDANAO

by incident



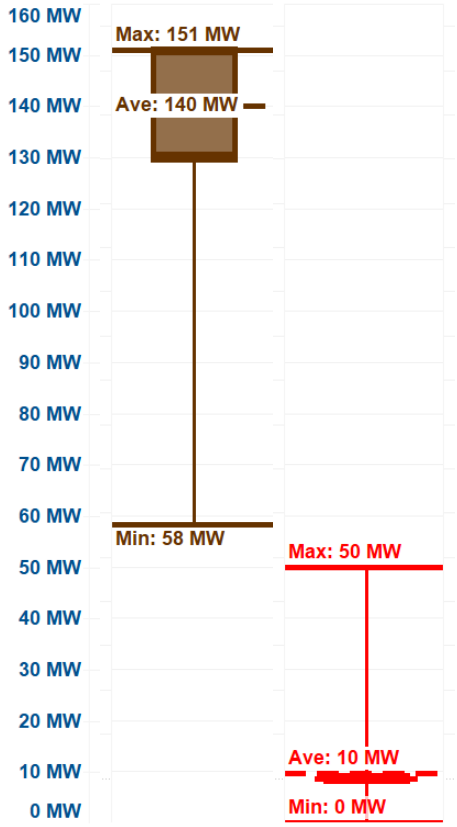
Commissioning Test
Commercial and Regulatory Requirements
MRU

Incident	Average	Minimum	Maximum
Commercial and Regulatory Requirements	56 MW	4 MW	151 MW
MRU	8 MW	0 MW	9 MW

In Mindanao, plants conducting commercial and regulatory requirements testing had the largest MW scheduled during the billing period, averaging at 56 MW and reaching as much as 151 MW. For oil-based plants, the same level of MW was scheduled to be dispatched as MRU, averaging at 8 MW.

Additionally, unlike in Luzon and Visayas, the MW scheduled in coal plants are mostly at almost full capacity.

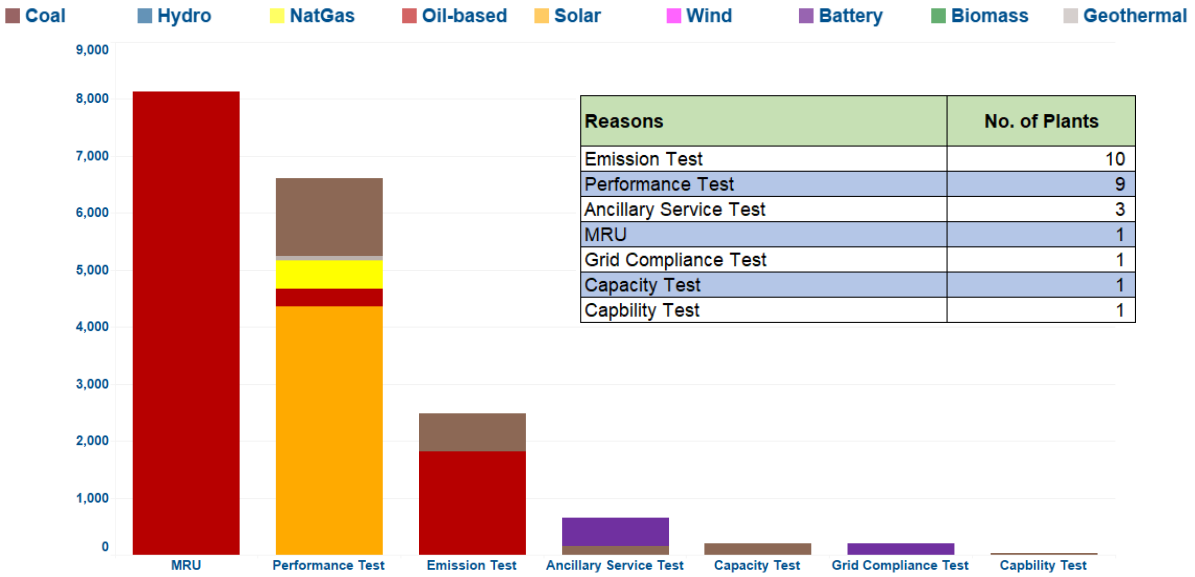
by plant type



Plant Type	Average	Minimum	Maximum
Coal	140 MW	58 MW	151 MW
Oil-based	10 MW	0 MW	50 MW

REASONS FOR OC IMPOSITION

NON-COMMISSIONING TESTS

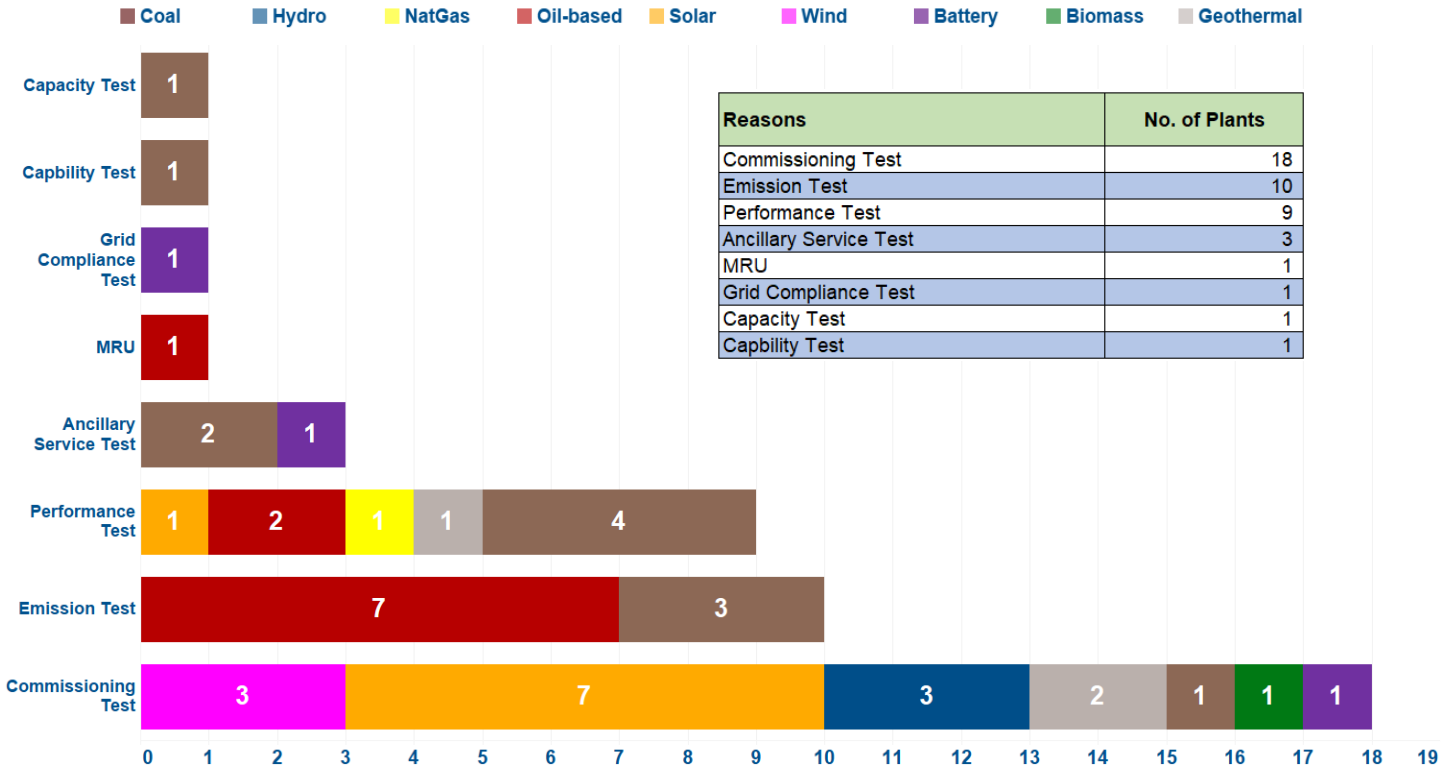


Reasons	No. of Plants
Emission Test	10
Performance Test	9
Ancillary Service Test	3
MRU	1
Grid Compliance Test	1
Capacity Test	1
Capbility Test	1

Excluding commissioning tests, the above chart reveals that MRUs (oil-based plants), performance tests (solar, coal, natural gas, geothermal, and oil-based plants), and emission tests (oil-based and coal plants) were the main reasons for the majority of OC imposition during the billing period.

NUMBER OF PLANTS

by incident



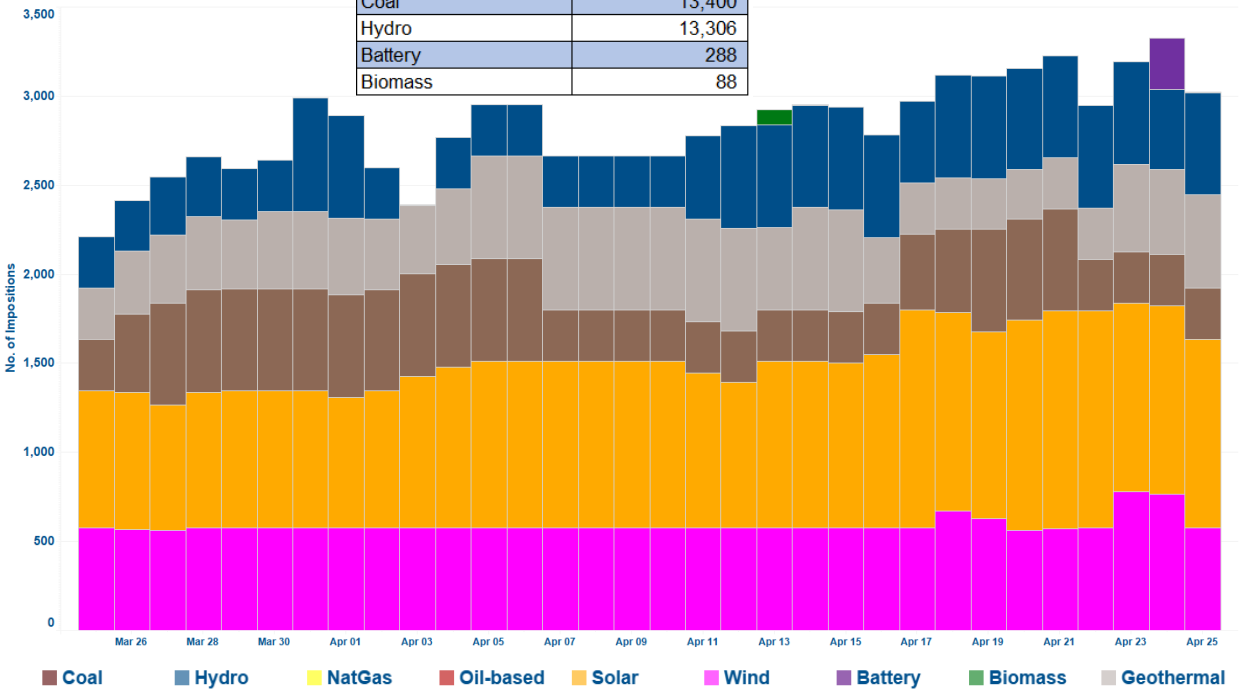
Reasons	No. of Plants
Commissioning Test	18
Emission Test	10
Performance Test	9
Ancillary Service Test	3
MRU	1
Grid Compliance Test	1
Capacity Test	1
Capbility Test	1

Similar with the previous billing period, a total of forty-four (44) plants were imposed with over-riding constraints. Eighteen (18) of these were related to commissioning tests, while ten (10) plants each were imposed with constraints due to emission testing. Nine (9) plants were noted to be imposed with OC due to performance tests. Additionally, fewer plants were involved in the conduct of other tests: three (3) related to grid ancillary service tests, and one (1) each for MRU, grid compliance, capability, and capacity tests.

OC IMPOSITION

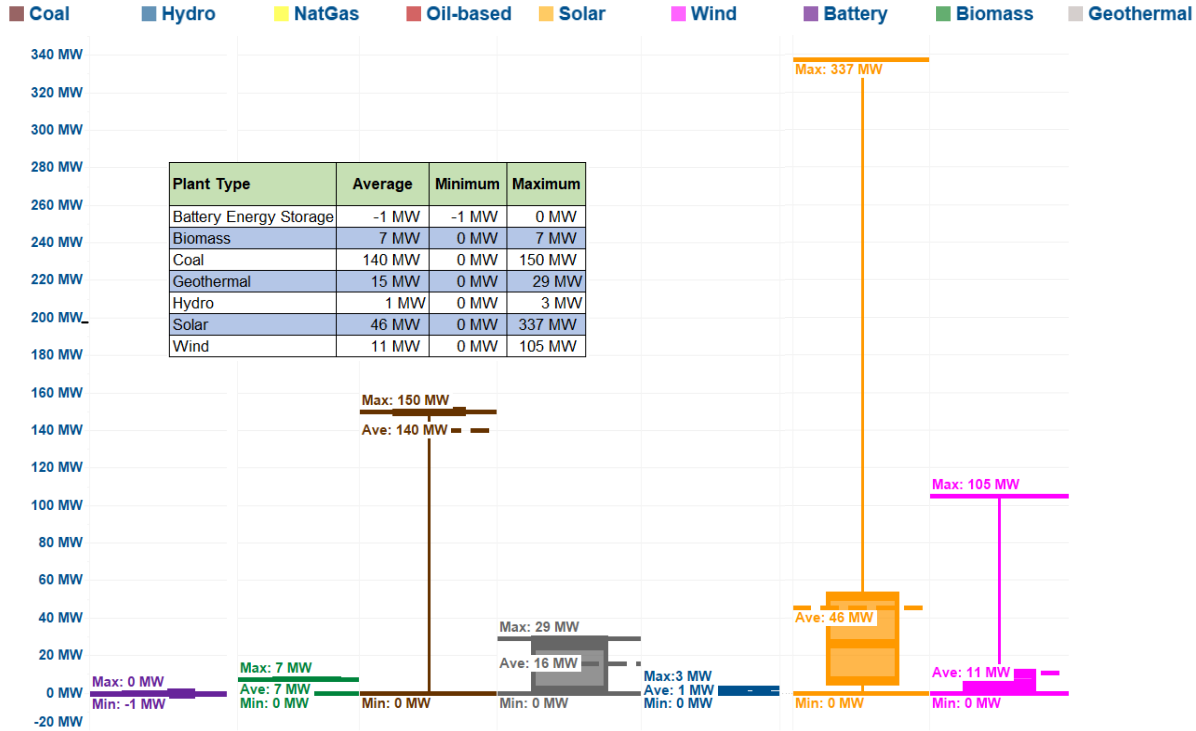
PLANTS UNDER COMMISSIONING TESTS

Plant Type	No. of Impositions
Solar	29,053
Wind	18,355
Geothermal	13,837
Coal	13,400
Hydro	13,306
Battery	288
Biomass	88



MW SCHEDULE

PLANTS UNDER COMMISSIONING TESTS



Plant Type	Average	Minimum	Maximum
Battery Energy Storage	-1 MW	-1 MW	0 MW
Biomass	7 MW	0 MW	7 MW
Coal	140 MW	0 MW	150 MW
Geothermal	15 MW	0 MW	29 MW
Hydro	1 MW	0 MW	3 MW
Solar	46 MW	0 MW	337 MW
Wind	11 MW	0 MW	105 MW

Renewable plants such as solar, geothermal, hydro, and wind plants experienced frequent OC imposition related to commissioning tests during the billing period, accounting for seventy percent (70%) of the total OC imposition.

During the billing period, solar plants had the highest scheduled MW but averaged at 46 MW due to technology variability. In contrast, coal plants maintained a high average scheduled of 140 MW.

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
Cagayan North Solar Power Plant	Solar	115
Caparispisan II Wind Power Project	Wind	50
Cayanga-Bugallon Solar Power Plant	Solar	75.1
Concepcion 1 Solar Power Project	Solar	76
Gamu Battery Energy Storage System (BESS)	Battery	40
GNPower Dinginin Coal Plant - Unit 2	Coal	668
Ibulao Hydroelectric Power Project	Hydro	6
Laoag Solar Power Plant	Solar	58.6
Mariveles Coal Fired Thermal Power Plant Unit 1	Coal	316
Mariveles Coal Fired Thermal Power Plant Unit 2	Coal	316
Matuno River Hydroelectric Power Plant	Hydro	8.7
Mariveles Coal-fired Thermal Power Plant Unit 2	Coal	150
Mariveles Coal-fired Thermal Power Plant Unit 3	Coal	150
Orion Solar Power Plant	Solar	16.2
San Marcelino Solar Power Project	Solar	326.4
Subic New PV Power Plant Project	Solar	62.7
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 3 / Mobile 5	Oil-Based	55.2
Navotas Bunker C-Fired Diesel Power Plant Power Barge 4 / Mobile 6	Oil-Based	52
Subplant 1 Alaminos Battery Energy Storage System	Battery	20
Calabanga Solar Power Project	Solar	59.8
Lower Labayat Hydroelectric Power Plant	Hydro	1.5
Pagbilao 3 Power Plant	Coal	420
Palayan Binary Power Plant	Geothermal	31
QPPL Coal-Fired Power Plant	Coal	460
San Gabriel Power Plant	Natural Gas	420
VISAYAS		
Biliran Geothermal Power Plant Project Phase 1	Geothermal	2
Sangi Coal Fired Power Plant	Coal	83.6
Kabankalan Battery Energy Storage System	Battery	20
Bohol Diesel Power Plant Unit 1	Oil-Based	4

[1] As of 22 April 2024

Plant/Unit Name	Plant Type	Registered Capacity (MW)[1]
Bohol Diesel Power Plant Unit 2	Oil-Based	4
Bohol Diesel Power Plant Unit 3	Oil-Based	4.2
Bohol Diesel Power Plant Unit 4	Oil-Based	4
Power Barge 104 Unit 1	Oil-Based	7
Power Barge 104 Unit 3	Oil-Based	7
Power Barge 104 Unit 4	Oil-Based	8
Biomass Co-Generation Power Plant Unit 2	Biomass	7.1
PPC3 Nabas Bunker C-Fired Diesel Power Plant Unit 2	Oil-Based	3.4
PEDC Coal-Fired Thermal Power Plant Unit 1	Coal	83.7
PEDC Coal-Fired Thermal Power Plant Unit 2	Coal	83.7
Nabas Wind Power Plant Phase 2 (Nabas-2)	Wind	13.2
Power Barge 101- Unit 1	Oil-Based	6
Power Barge 101- Unit 4	Oil-Based	6
MINDANAO		
Misamis Occidental Bunker C-Fired Power Plant 2 Unit 1	Oil-Based	7.8
Misamis Occidental Bunker C-Fired Power Plant 2 Unit 2	Oil-Based	7.8
Bunker-C Fired Diesel Power Plant Unit 1	Oil-Based	10.2
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
GNPK's Coal Fired Power Plant Unit 1	Coal	151.9
GNPK's Coal Fired Power Plant Unit 2	Coal	151
Bukidnon Bunker C-Fired Diesel Power Plant 2	Oil-Based	7.5
Malita Circulating Fluidized Bed Coal Fired Thermal Power Plant (CFB CFTPP) Unit 2	Coal	150
Mobile 1 Bunker C-Fired Power Plant Unit 1	Oil-Based	49
Mobile 1 Bunker C-Fired Power Plant Unit 2	Oil-Based	50
PSI Bunker C-Fired Power Plant	Oil-Based	34.9
Phase 2 Coal-Fired Power Plant	Coal	118.5

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