



MONTHLY OVER-RIDING CONSTRAINTS HIGHLIGHTS

26 April to 25 May 2024

Document Information Classification: Public

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SUMMARY OF OBSERVATIONS

A **12.9% net increase** in over-riding constraints during the billing period was observed due to the following reasons:

- Over-riding constraints for hydro power plants in Luzon decreased due to the completion of commissioning tests at the Lower Labayat HEP, however, commissioning tests of geothermal and wind plants in Visayas increased.
- Performance tests and ancillary service tests of plant in both Luzon and Visayas regions increased.
- Over-riding constraints due to dispatching of plants as Must-Run Units (MRUs) in Mindanao increased to address system voltage requirements in the Zamboanga area and thermal limits of lines and equipment in Davao Oriental.

AT A GLANCE

Total Over-riding
Constraints
Imposition

119,788

▲ **12.9%**
increase from
previous billing
period



LUZON
90,178



Solar plants had the highest no. of over-riding constraints

Coal plants, on average, had the largest capacities scheduled due to performance test



Most over-riding constraints were due to commissioning test of various plants



VISAYAS
18,191



Geothermal plants had the highest no. of over-riding constraints

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



Most over-riding constraints were due to the conduct of commissioning test of geothermal and hydro plant



MINDANAO
11,419



Oil-based plants had the highest no. of over-riding constraints



Oil-based plants, on average, had the largest capacities scheduled to plants dispatched as **MRU**

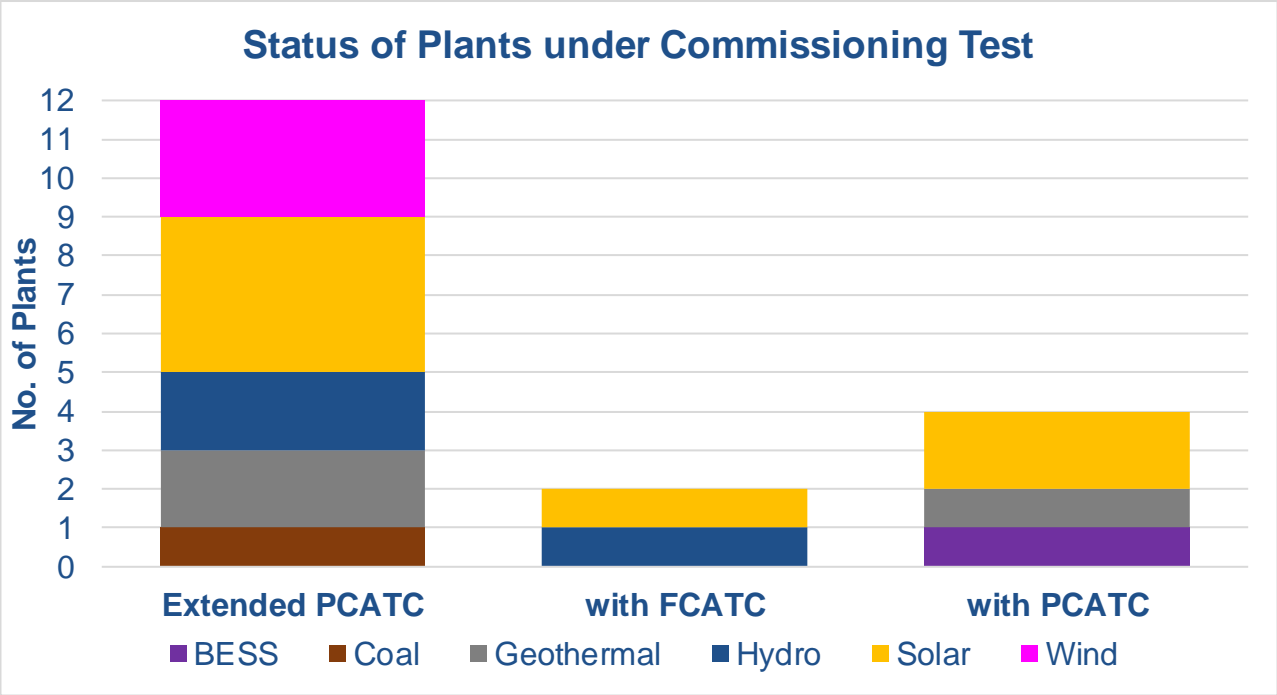


Most OCs were due to **oil-based** plants dispatched as **Must-Run Unit**

STATUS OF PLANTS UNDER COMMISSIONING TEST

No. of Plants Under Commissioning Test

18



Average no. of days under commissioning test per plant type

BESS

52

Coal

108

Geo

112

Hydro

205

Solar

132.4

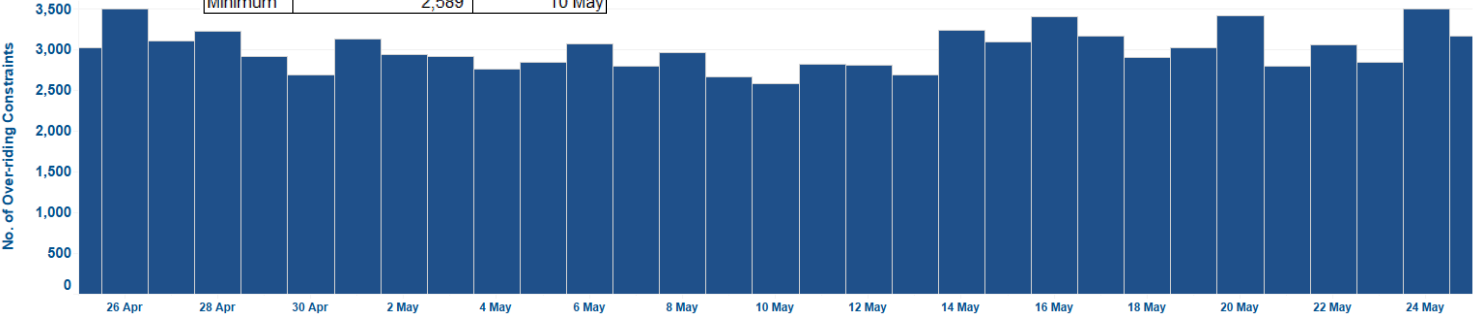
Wind

193.3

OVER-RIDING CONSTRAINTS

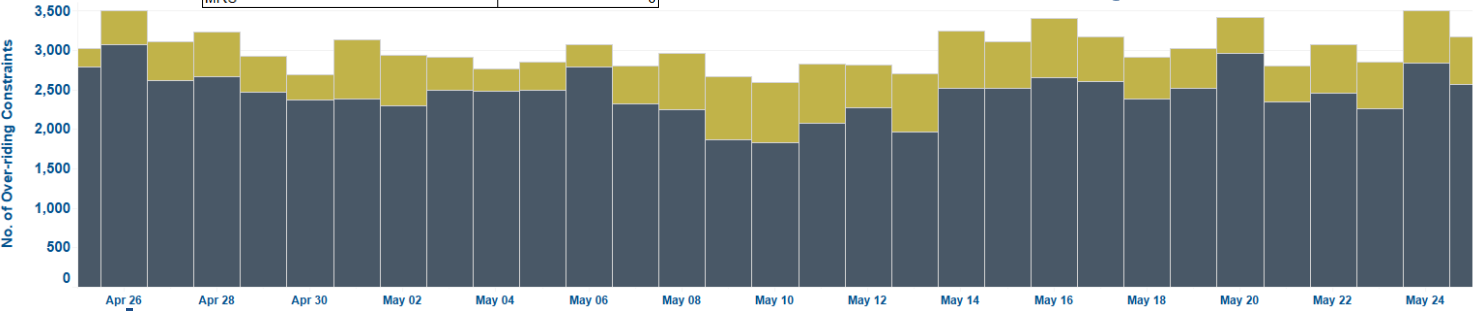
LUZON

	No. of Over-riding Constraints	Date
Maximum	3,499	24 May
Average	3,009	
Minimum	2,589	10 May



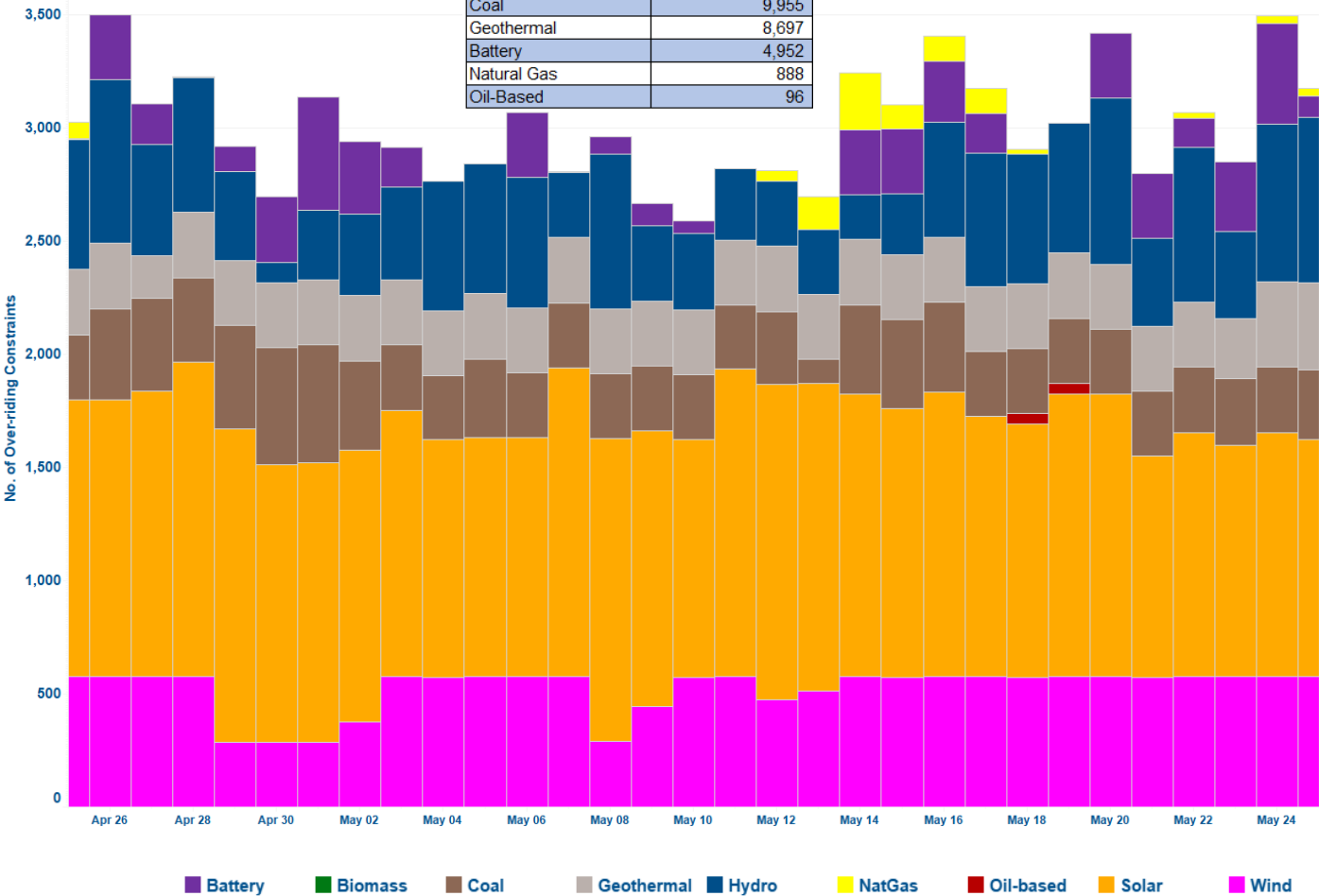
Incident	No. of Over-riding Constraints
Commissioning Test	73,325
Commercial and Regulatory Requirements	16,853
MRU	0

by incident

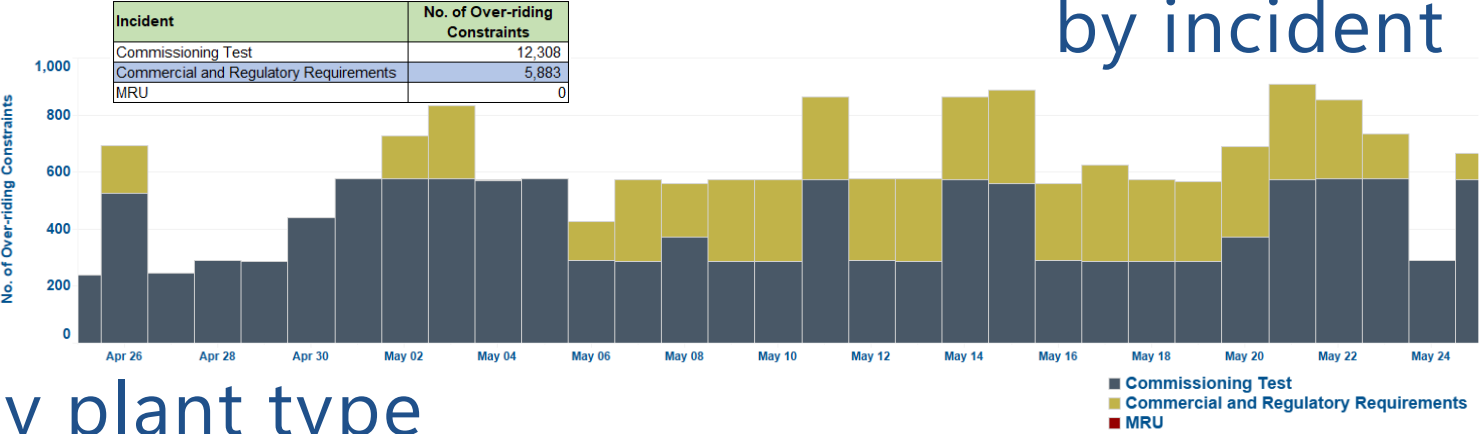
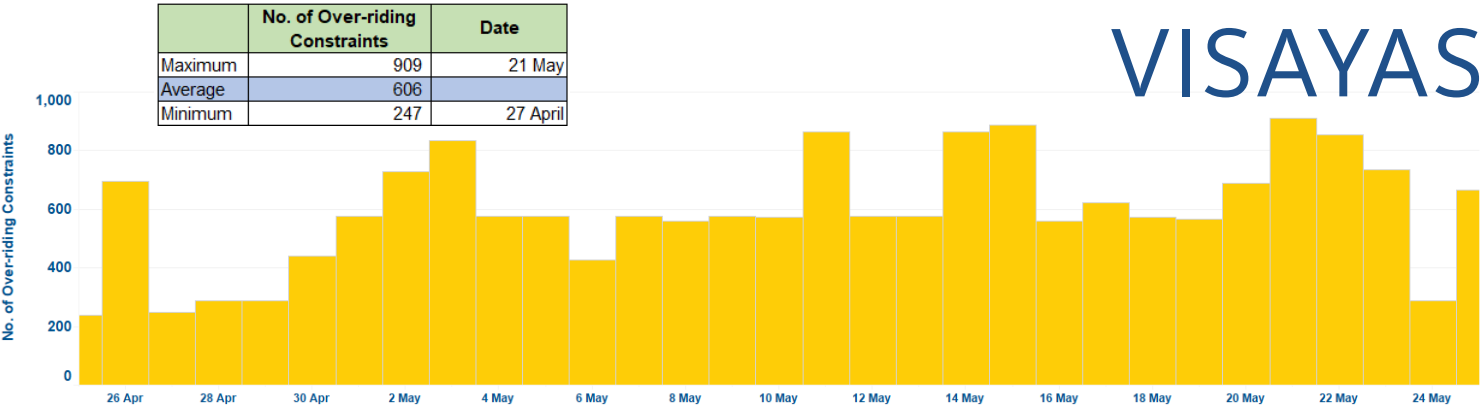


by plant type

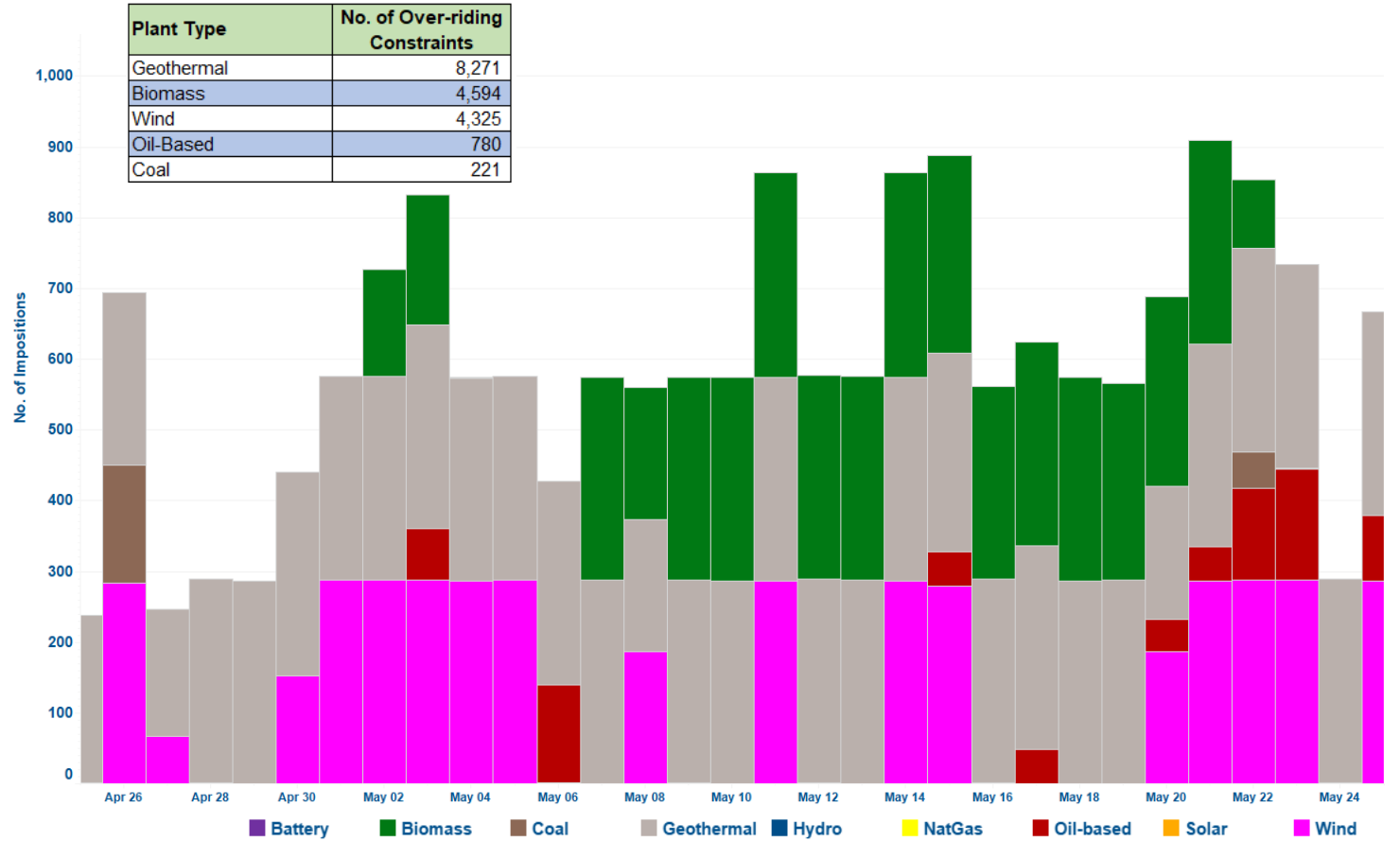
Plant Type	No. of Over-riding Constraints
Solar	36,007
Wind	15,625
Hydro	13,958
Coal	9,955
Geothermal	8,697
Battery	4,952
Natural Gas	888
Oil-Based	96



Most of the over-riding constraints in Luzon 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.



by plant type

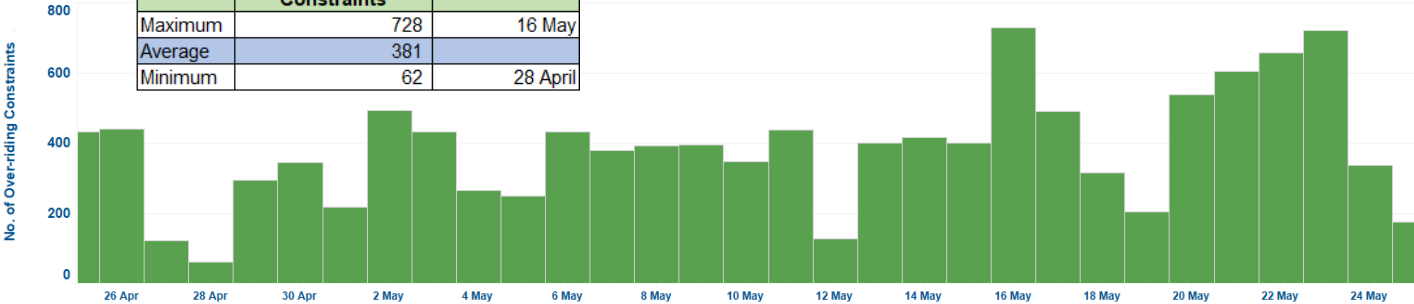


In the Visayas region, commissioning tests of geothermal and wind plants were the primary reason for the high number of observed over-riding constraints. Notably, unlike Luzon's wind plants which, underwent continuous commissioning tests, those in Visayas were conducted intermittently.

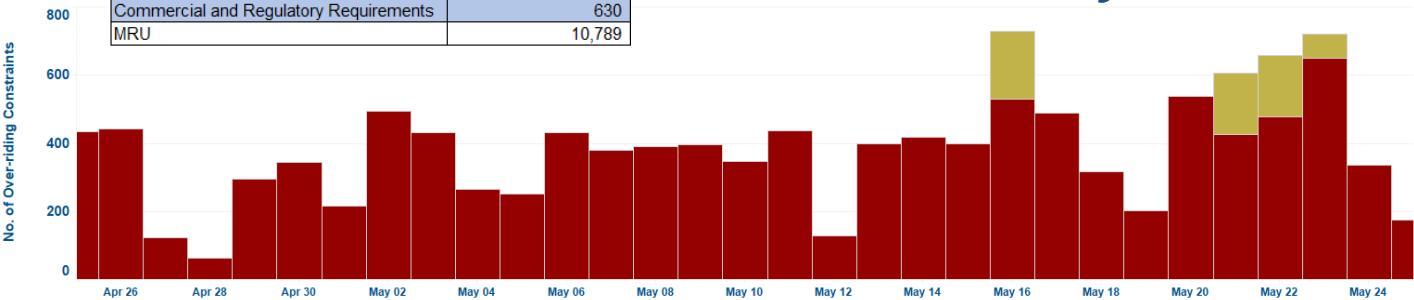
Ancillary service test of biomass plants from 07 to 22 May contributed to the increase in over-riding constraints.

MINDANAO

	No. of Over-riding Constraints	Date
Maximum	728	16 May
Average	381	
Minimum	62	28 April



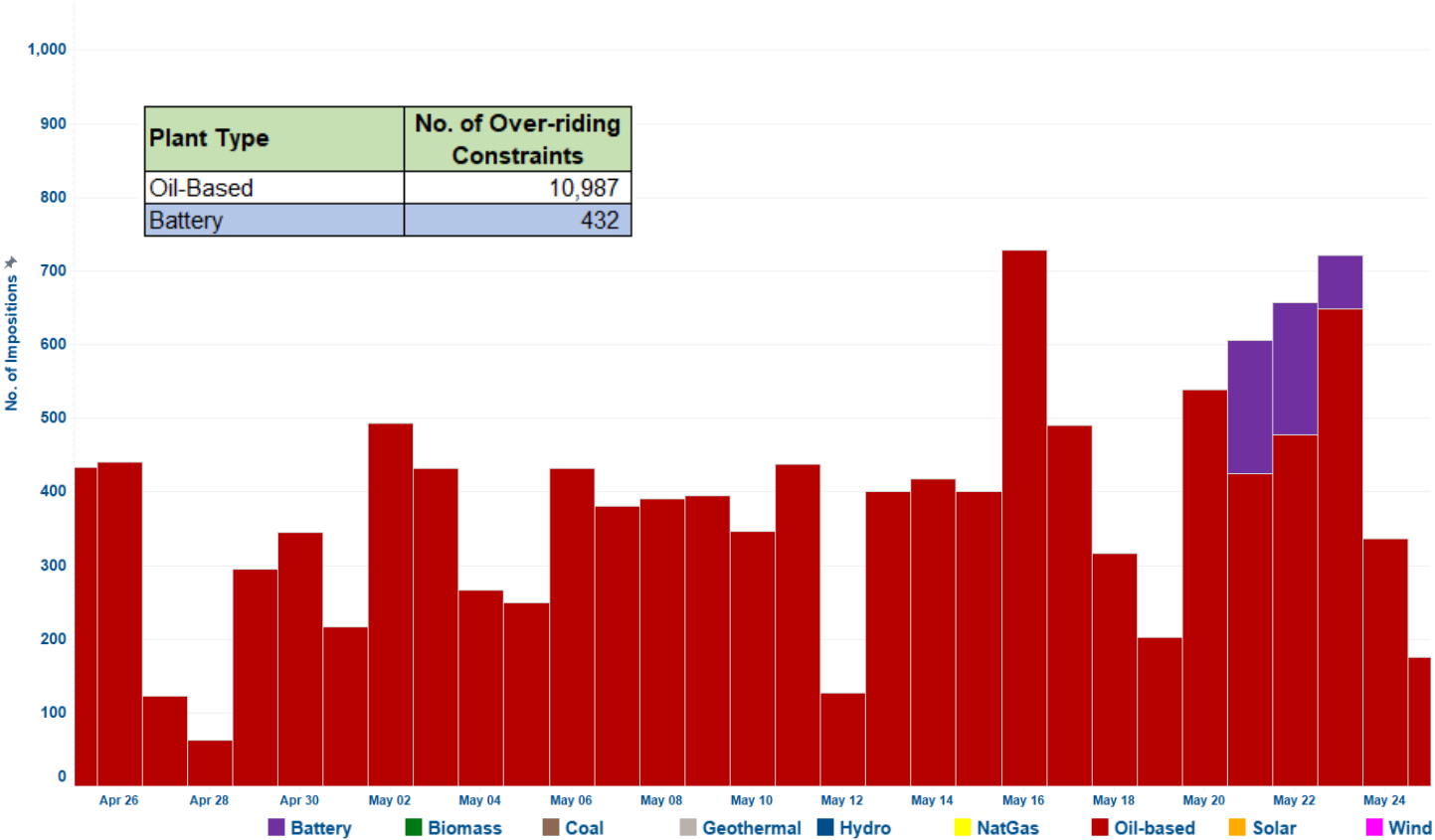
Incident	No. of Over-riding Constraints
Commissioning Test	0
Commercial and Regulatory Requirements	630
MRU	10,789



by incident

by plant type

Commissioning Test
Commercial and Regulatory Requirements
MRU



Similar to the previous billing period, oil-based plants dispatched as MRU in Mindanao were attributable to most imposition during the billing period to address the system voltage requirement in Zamboanga area and thermal limit of lines and equipment in Davao Oriental area.

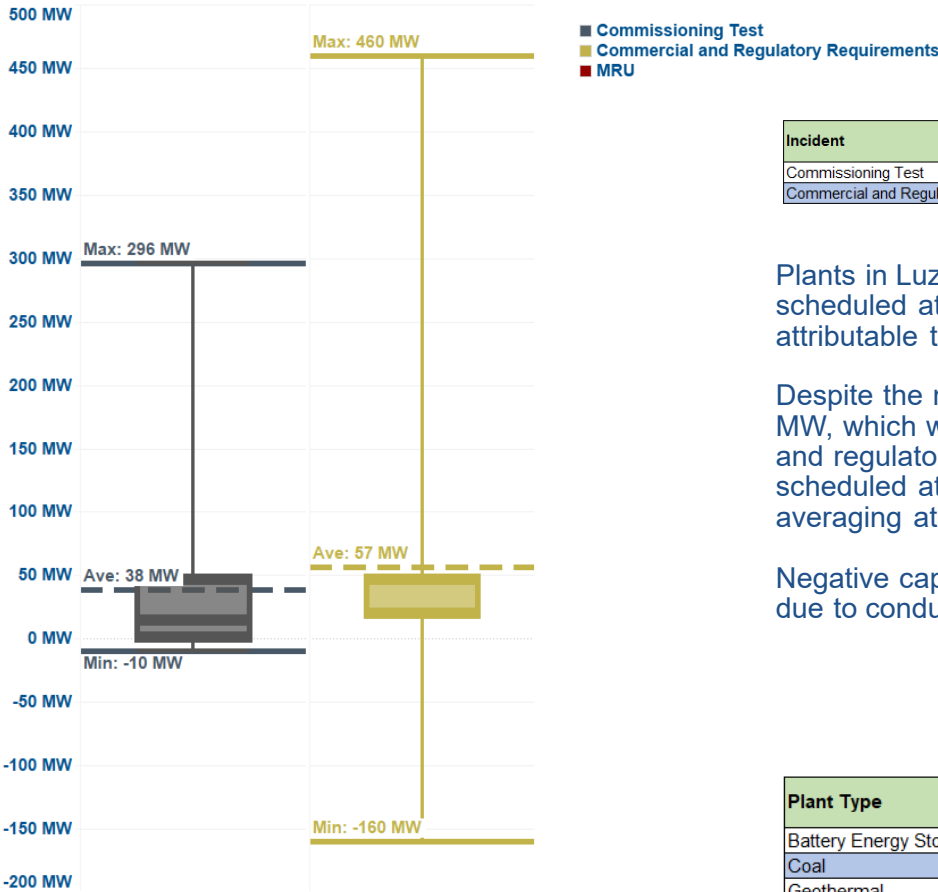
Performance test of BESS on 21 to 23 May was also observed in Mindanao Region.

Public

by incident

SCHEDULED CAPACITIES

LUZON



Incident	Average	Minimum	Maximum
Commissioning Test	38 MW	-10 MW	296 MW
Commercial and Regulatory Requirements	57 MW	-160 MW	460 MW

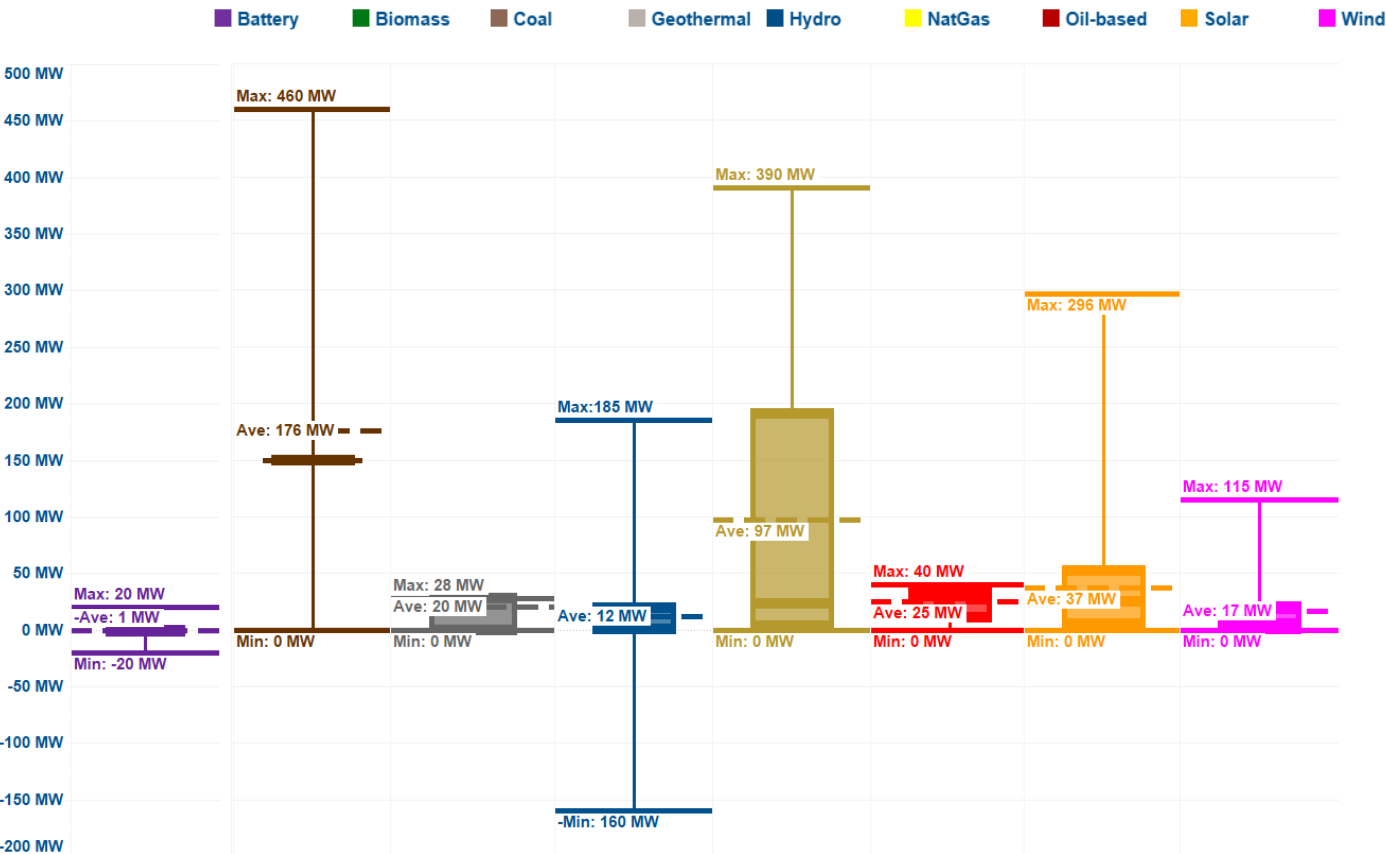
Plants in Luzon undergoing commissioning tests were scheduled at an average of 38 MW, peaking at 296 MW attributable to solar plants during the day.

Despite the maximum MW scheduled reaching up to 460 MW, which was scheduled on coal plants, commercial and regulatory requirements test were typically scheduled at a lower MW level most of the time, averaging at 57 MW.

Negative capacities scheduled on hydro and BESS was due to conduct of performance test.

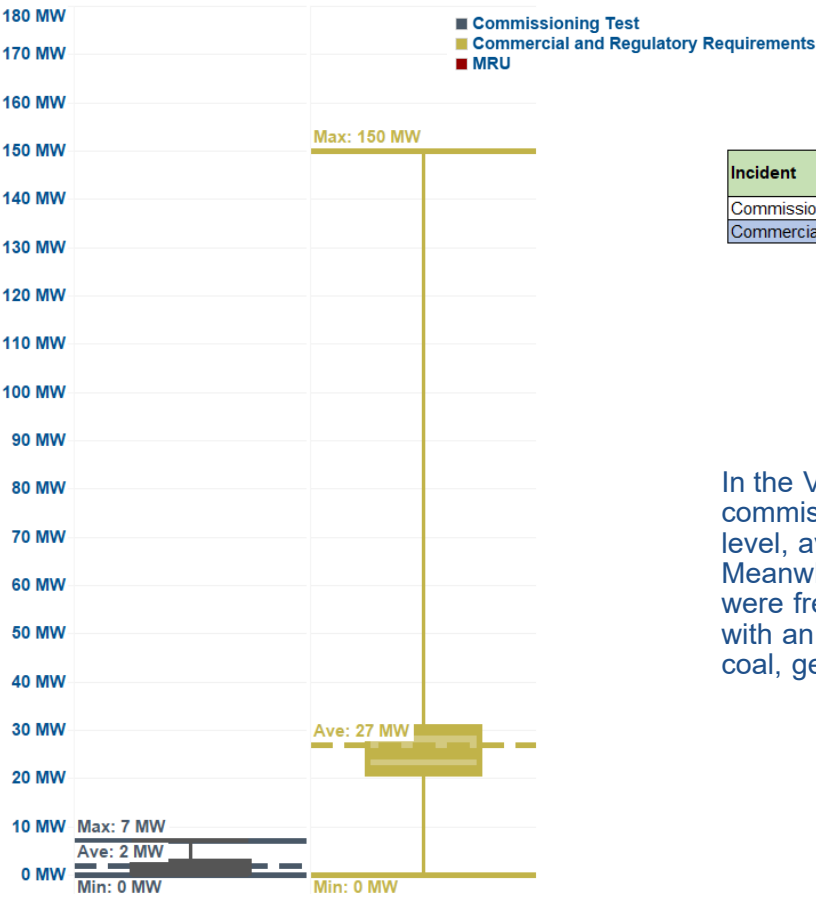
Plant Type	Average	Minimum	Maximum
Battery Energy Storage	-1 MW	-20 MW	20 MW
Coal	176 MW	0 MW	460 MW
Geothermal	20 MW	0 MW	28 MW
Hydro	12 MW	-160 MW	185 MW
Natural Gas	97 MW	0 MW	390 MW
Oil-based	25 MW	0 MW	40 MW
Solar	37 MW	0 MW	296 MW
Wind	17 MW	0 MW	115 MW

by plant type



by incident

VISAYAS

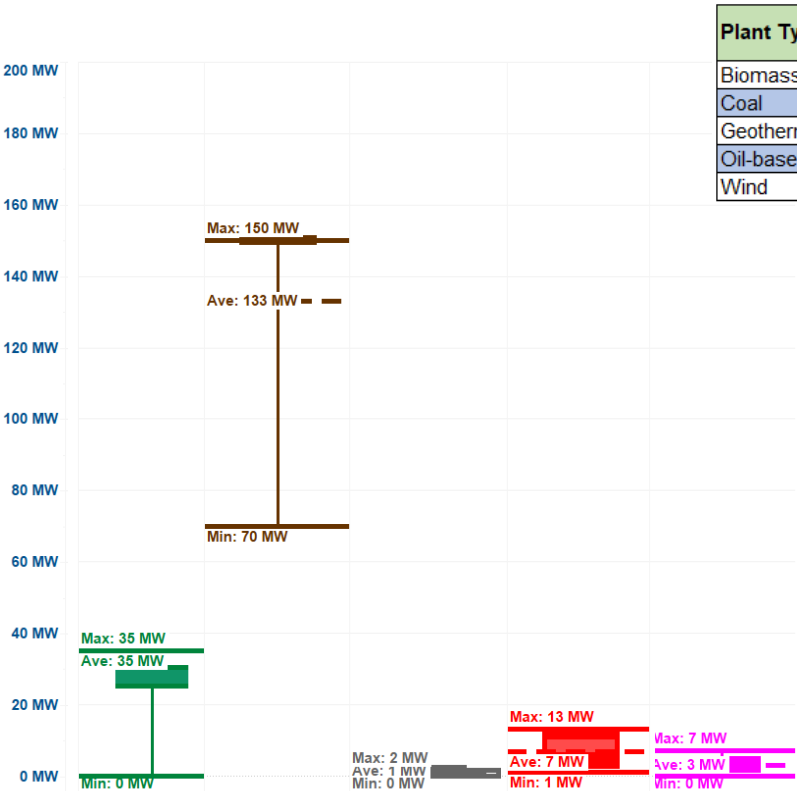


Incident	Average	Minimum	Maximum
Commissioning Test	2 MW	0 MW	7 MW
Commercial and Regulatory Requirements	27 MW	0 MW	150 MW

In the Visayas region, OC imposition related to commissioning tests were scheduled at a lower MW level, averaging at 2 MW and reaching up to 7 MW. Meanwhile, commercial and regulatory requirements were frequently scheduled between 0 to 150 MW, with an average of 27 MW. This was accounted to coal, geothermal, and oil-based plants.

by plant type

Battery Biomass Coal Geothermal Hydro NatGas Oil-based Solar Wind

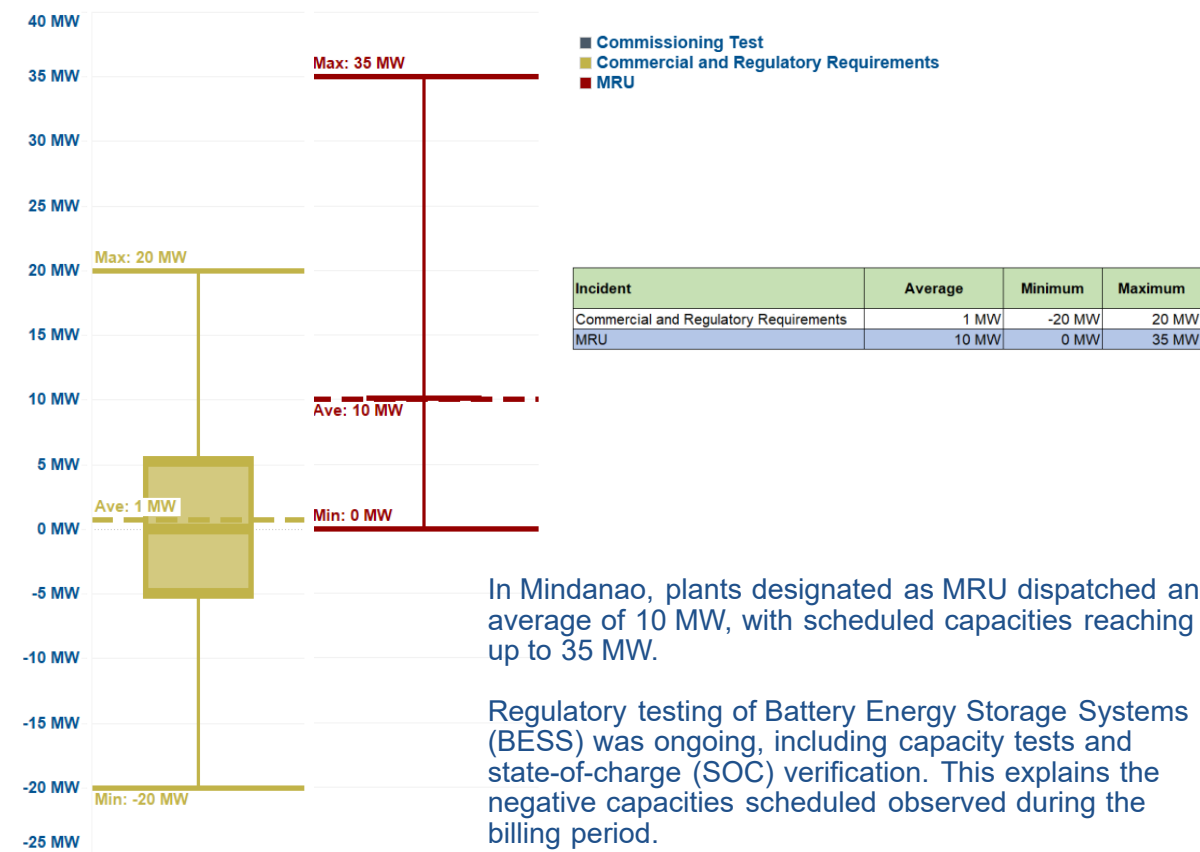


Plant Type	Average	Minimum	Maximum
Biomass	35 MW	0 MW	35 MW
Coal	133 MW	70 MW	150 MW
Geothermal	1 MW	0 MW	2 MW
Oil-based	7 MW	1 MW	13 MW
Wind	3 MW	0 MW	7 MW

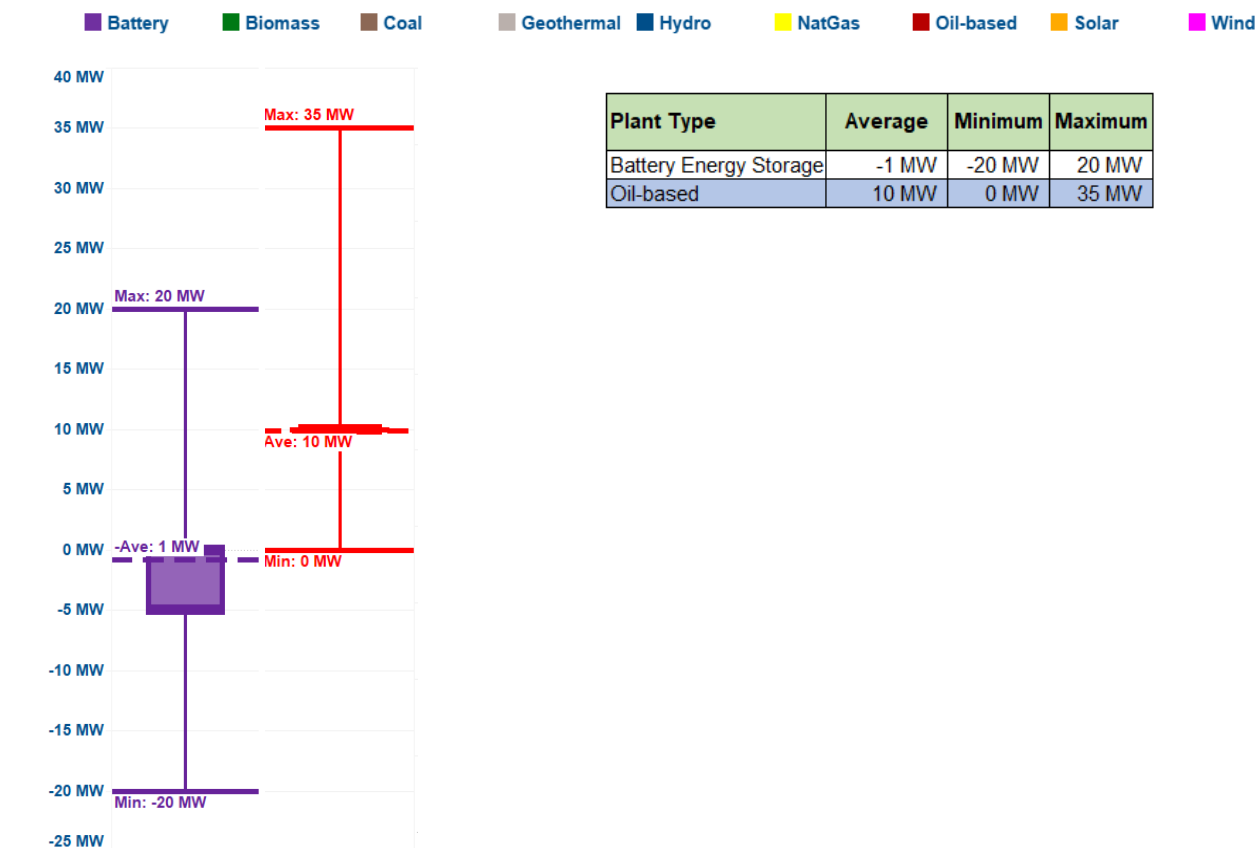
SCHEDULED CAPACITIES

MINDANAO

by incident



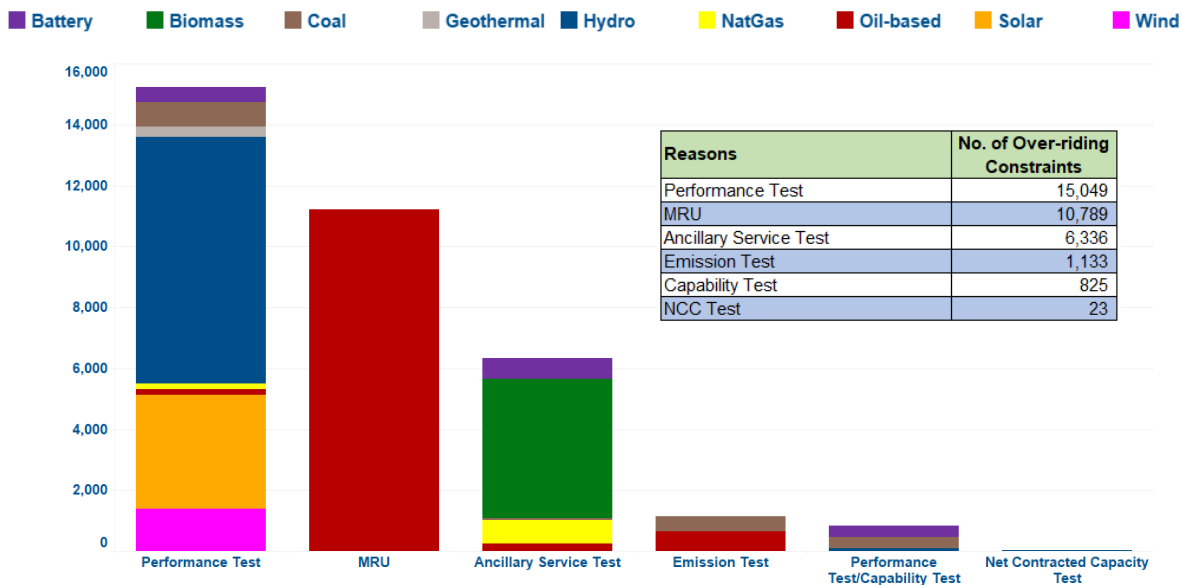
by plant type



OVER-RIDING CONSTRAINTS

by incident

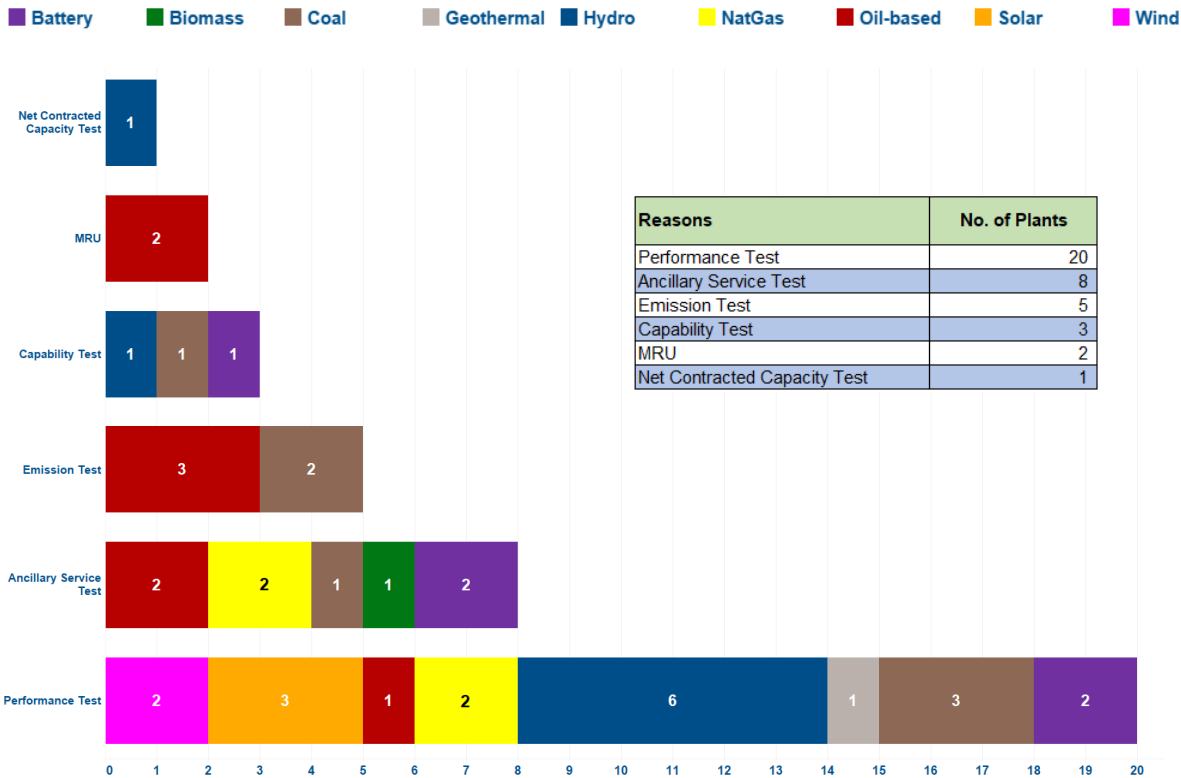
(excluding commissioning test)



The above chart reveals that MRUs (oil-based plants), performance tests (wind, solar, oil-based, natural gas, hydro, geothermal, coal, and BESS), and ancillary service tests (BESS, oil-based, natural gas, and biomass plants) were the main reasons for the majority of OC imposition during the billing period.

NUMBER OF PLANTS

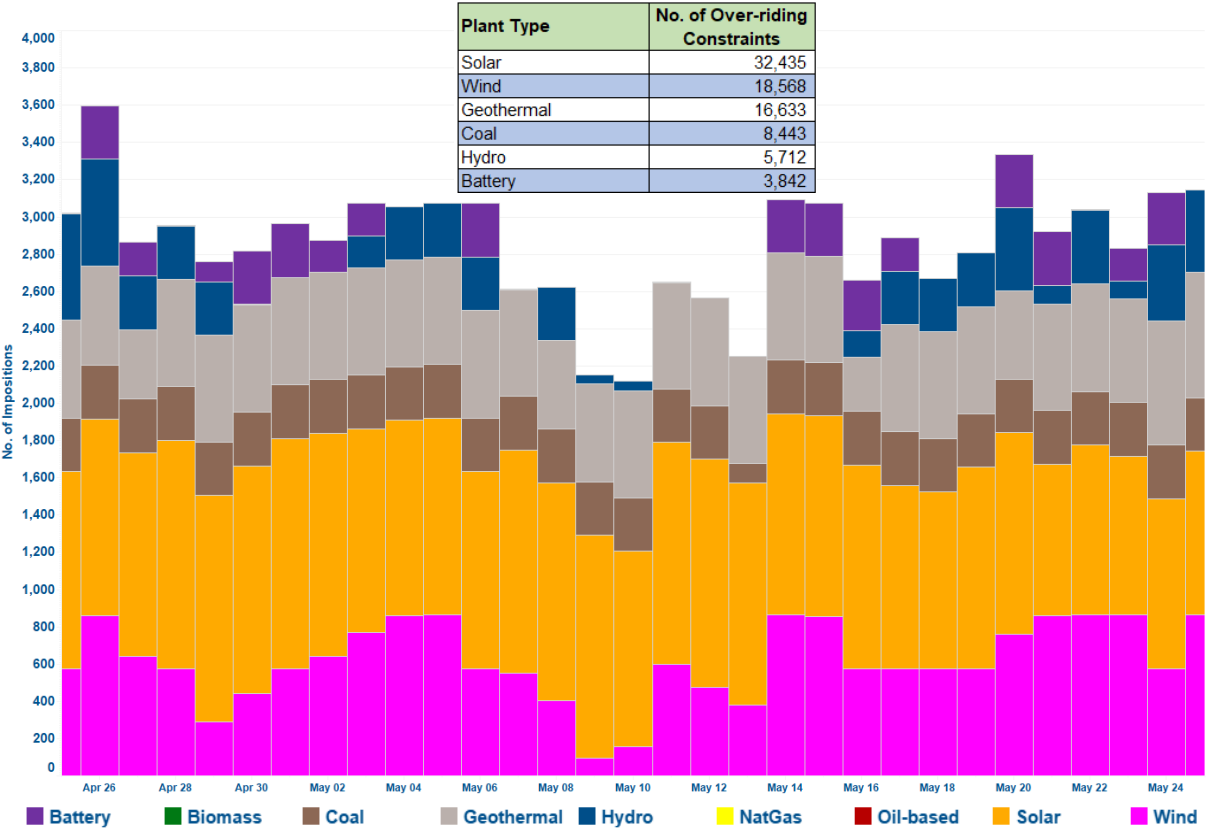
by incident



Power plants undergo testing to ensure the grid receives reliable power, this test includes net contracted capacity (NCC), capacity, emission, ancillary service, and performance tests.

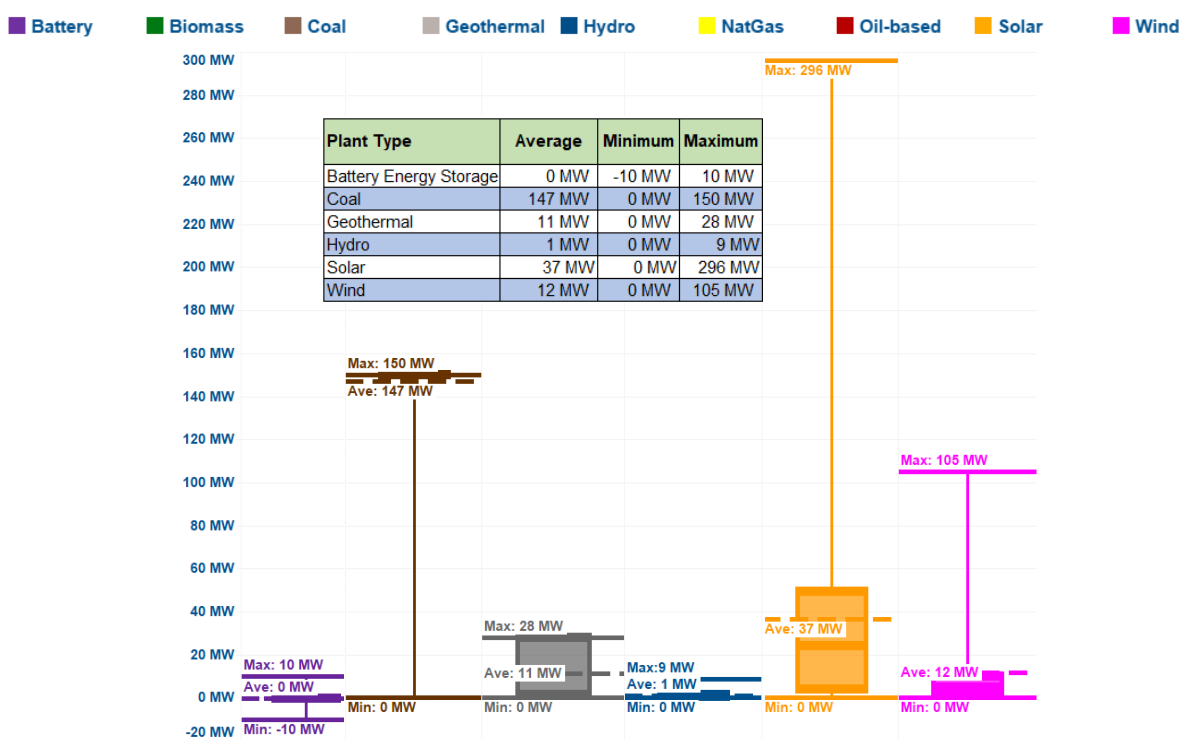
MRUs are dispatched to ensure the reliability and security of grid.

PLANTS UNDER COMMISSIONING TESTS



SCHEDULED CAPACITIES

PLANTS UNDER COMMISSIONING TESTS



Renewable plants such as solar, geothermal, hydro, and wind plants experienced frequent OC imposition related to commissioning tests during the billing period, accounting for sixty-one percent (61%) of the total over-riding constraints.

Solar plants, despite having the highest scheduled capacity, averaged only at 37 MW of scheduled capacities due to inherent variability in solar power generation. In contrast, coal plants maintained a high average scheduled capacity of 147 MW.

ANNEX A

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
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 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 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	417.4
Ambuklao Hydroelectric Power Plant Unit 1	Hydro	37.5
Ambuklao Hydroelectric Power Plant Unit 3	Hydro	37.5
Angat Hydroelectric Power Plant Unit A	Hydro	19.6
Magat Battery Energy Storage System	Battery	24
Magat Hydroelectric Power Plant Unit 3	Hydro	97
San Roque Hydro Electric Power Plant Unit 1	Hydro	145
San Roque Hydro Electric Power Plant Unit 2	Hydro	145
Navotas Bunker C-Fired Diesel Power Plant Power Barge 2 / Mobile 4	Oil-Based	51.5
San Gabriel Avion Natural Gas-Fired Power Plant Unit 1	Natural Gas	47.2

¹ As of 27 May 2024

Plant/Unit Name	Plant Type	Registered Capacity (MW) ¹
San Gabriel Avion Natural Gas-Fired Power Plant Unit 2	Natural Gas	45.8
Botocan Hydro Electric Power Plant	Hydro	20.8
Calaca Coal-Fired Thermal Power Plant 2	Coal	300
Caliraya Hydro Electric Power Plant	Hydro	28
Kalayaan Hydro Electric Power Plant 3	Hydro	184.6
Pagbilao Coal-Fired Power Plant 1	Coal	382
Pagbilao Coal-Fired Power Plant 2	Coal	382
Tiwi Geothermal Binary Power Plant	Geothermal	16.7
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
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		
17MW Tiwi Geothermal Binary Power Plant	Oil-Based	10.2
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
Bunker-C Fired Diesel Power Plant Unit 7	Oil-Based	10.1
Bunker-C Fired Diesel Power Plant Unit 8	Oil-Based	10.2
Bunker-C Fired Diesel Power Plant Unit 10	Oil-Based	10.2
Bunker-C Fired Diesel Power Plant Unit 2	Oil-Based	10.2
Bunker-C Fired Diesel Power Plant Unit 9	Oil-Based	5.2
PSFI Bunker C-Fired Diesel Power Plant Unit 1	Oil-Based	5.2
PSFI Bunker C-Fired Diesel Power Plant Unit 2	Oil-Based	50
Mobile 2 Bunker C-Fired Power Plant Unit 1	Battery	20
Maco Battery Energy Storage System (BESS)	Oil-Based	10.2

ANNEX B

Plants Under Commissioning Tests

Plant/Unit Name	Plant Type	Registered Capacity (MW) ²	No. of PCATC Extensions	No. of Days under Commissioning Tests
LUZON				
Balaoi and Caunayan Wind Power Project Phase 1	Wind	80	10	448
Cagayan North Solar Power Plant	Solar	115	4	202
Caparispisan II Wind Power Project	Wind	168	1	81
Cayanga-Bugallon Solar Power Plant	Solar	75.1	3	215
Gamu Battery Energy Storage System (BESS)	Battery	40		52
Ibulao Hydroelectric Power Project	Hydro	6	1	68
Laoag Solar Power Plant	Solar	58.6		52
Matuno River Hydroelectric Power Plant	Hydro	8.7	6	322
Mariveles Coal-fired Thermal Power Plant Unit 3	Coal	150	3	122
Orion Solar Power Plant	Solar	16.2	3	189
San Marcelino Solar Power Project	Solar	326.4	3	142
Subic New PV Power Plant Project	Solar	62.7	1	87
Calabanga Solar Power Project	Solar	59.8		40
Lower Labayat Hydroelectric Power Plant	Hydro	1.5	4	236
Palayan Binary Power Plant	Geothermal	31	2	164
Tiwi Geothermal Binary Power Plant	Geothermal	16.7		3
VISAYAS				
Biliran Geothermal Power Plant Project Phase 1	Geothermal	2	3	157
Nabas Wind Power Plant Phase 2	Wind	13.2	1	51

² As of 27 May 2024

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