



MONTHLY OVER-RIDING CONSTRAINTS HIGHLIGHTS

26 May to 25 June 2024

Document Information Classification: Public

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SUMMARY OF OBSERVATIONS

A **1.28% net increase** in over-riding constraints during the billing period was observed due to the following reasons:

- Over-riding constraints in Luzon increase with the entry of one (1) new Battery Energy System Storage (BESS) and one (1) geothermal plant which commenced their respective commissioning test periods;
- Despite decrease in ancillary service test in Visayas plants, an increase in the overall over-riding constraints was attributable to the commissioning test of geothermal and wind plant during the reviewed billing period.
- Over-riding constraints due to dispatching of plants as Must-Run Units (MRUs) in Mindanao increased to address system voltage requirements in the Zamboanga and Agusan del Norte area.


AT A GLANCE

Total Over-riding
Constraints
Imposition

121,327

▲ **1.28%**
increase from
previous billing
period


 **LUZON**
95,154


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


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

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

 **VISAYAS**
12,638


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

Geothermal plants, on average, had the largest capacity scheduled due to ancillary service test 

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

 **MINDANAO**
13,535

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

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

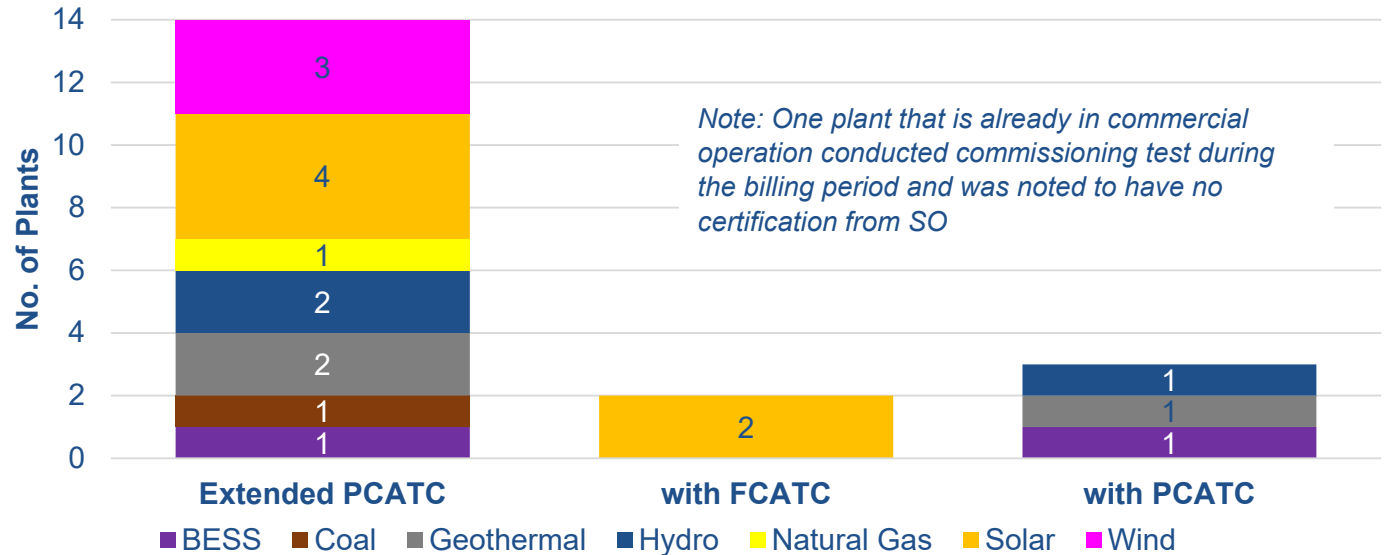
Most over-riding constraints were due to the conduct of commissioning test of hydro plant and **MRU** of **oil-based** plants

STATUS OF PLANTS UNDER COMMISSIONING TEST

No. of Plants Under Commissioning Test

20

Status of Plants under Commissioning Test



Ave. no. of days under commissioning test per plant type

Noted no. of extension of commissioning test period

BESS

58.5

1 - Gamu BESS

Coal

144

5 - MPGC U3

Geo

140

5 - Palayan Binary PP

Hydro

122

7 - Matuno HEP
3 - Ibulao HEP

Nat Gas

55

1 - Batangas CCPP

Solar

127

5 - Cagayan North SPP
3 - Cayanga-Bugallon
1 - Laoag Solar
3 - Pavi Green
2 - Subic PV Solar
1 - Calabanga SPP

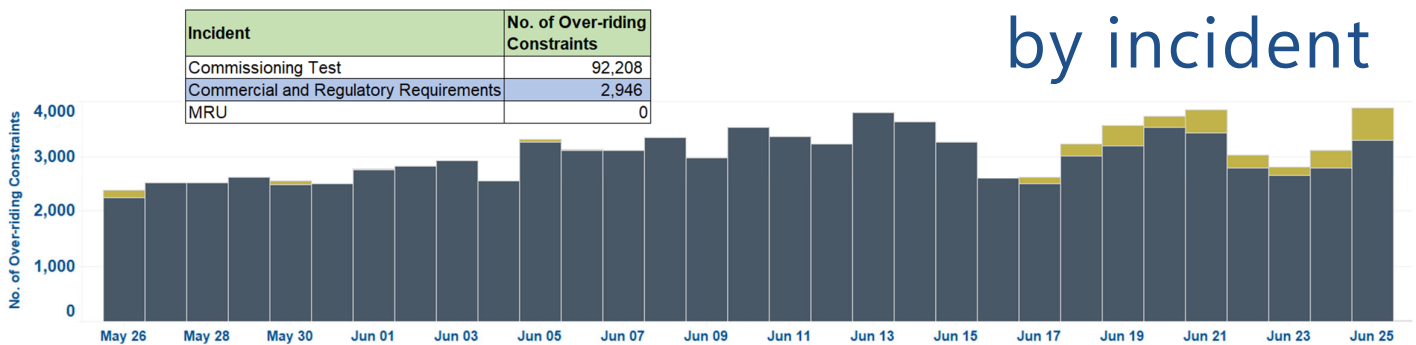
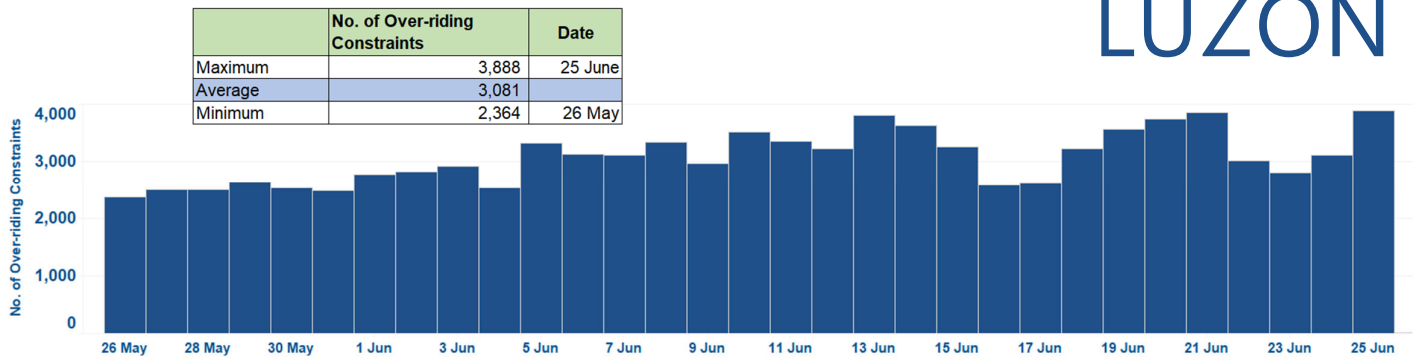
Wind

222

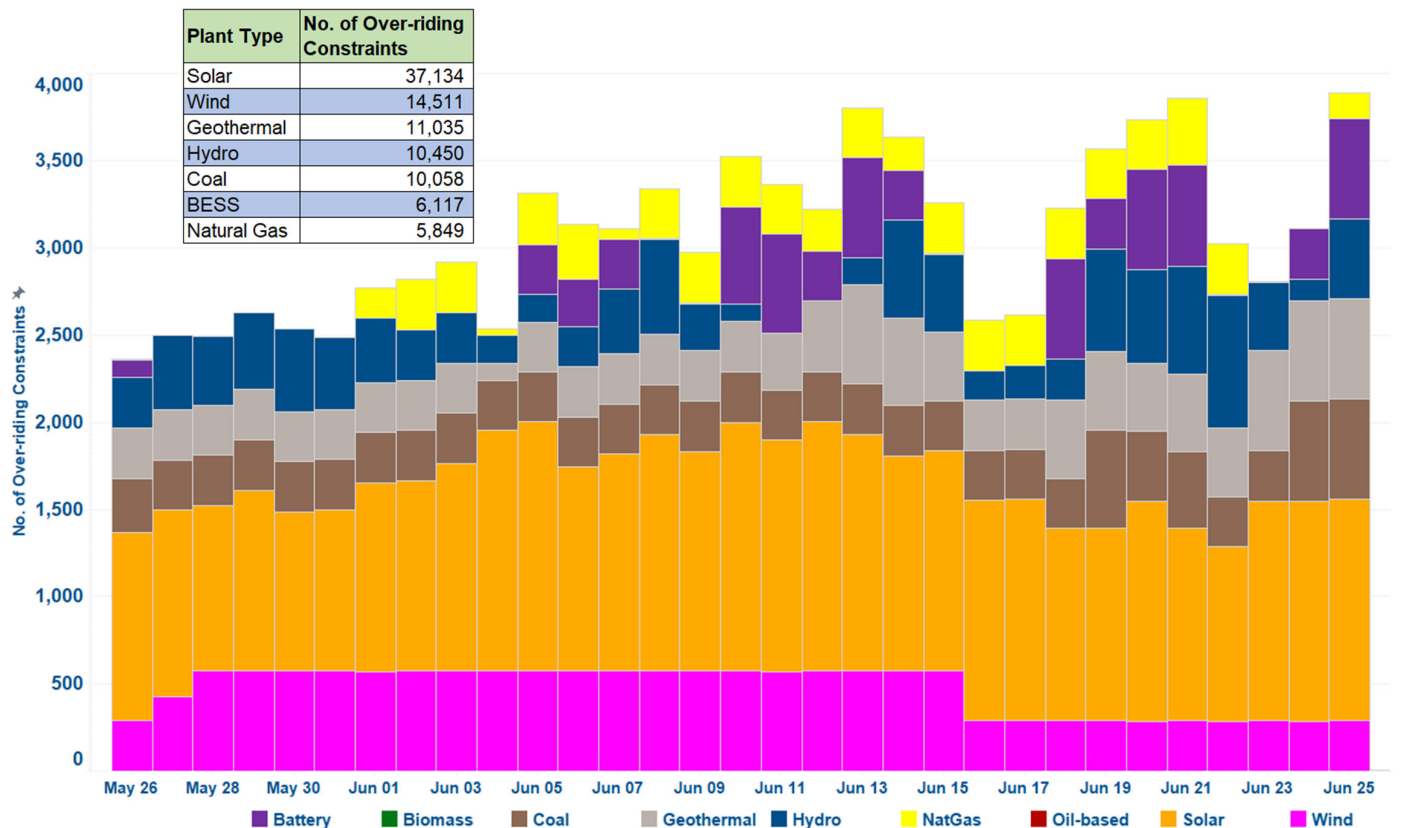
11 - Balaoi Caunayan WPP
2 - Caparispisan WPP
2 - PWEI Nabas WPP

OVER-RIDING CONSTRAINTS

LUZON



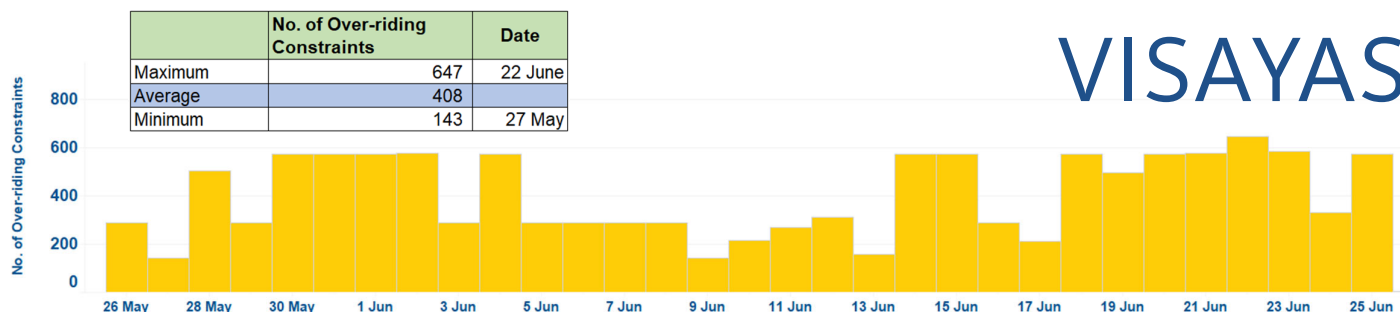
by plant type



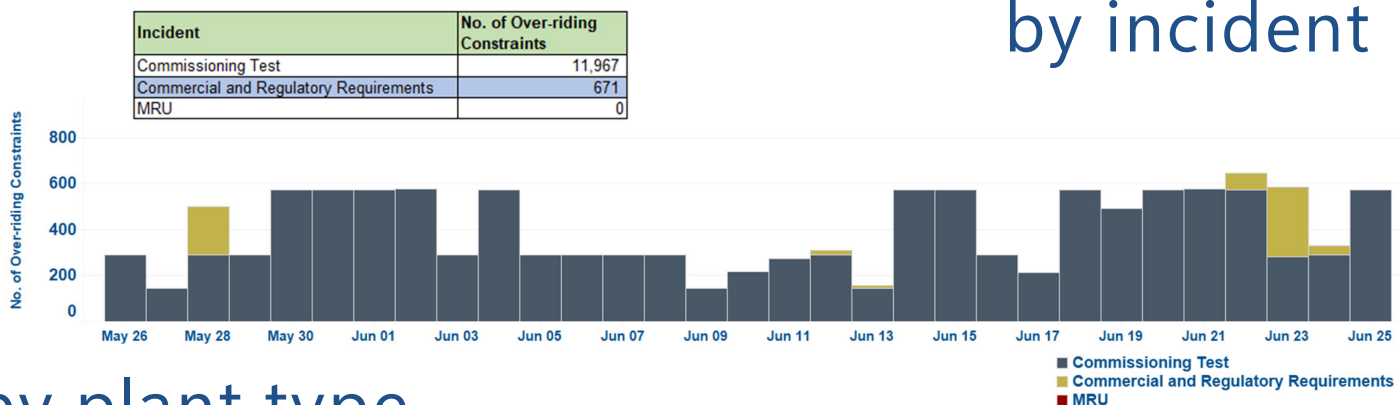
Most of the over-riding constraints in Luzon plants were due to the conduct of commissioning tests of solar, wind, coal, geothermal, hydro, and coal plants during the billing period. Caparispisan Wind stopped conducting commissioning test on 16 June despite having a valid PCATC.

OVER-RIDING CONSTRAINTS

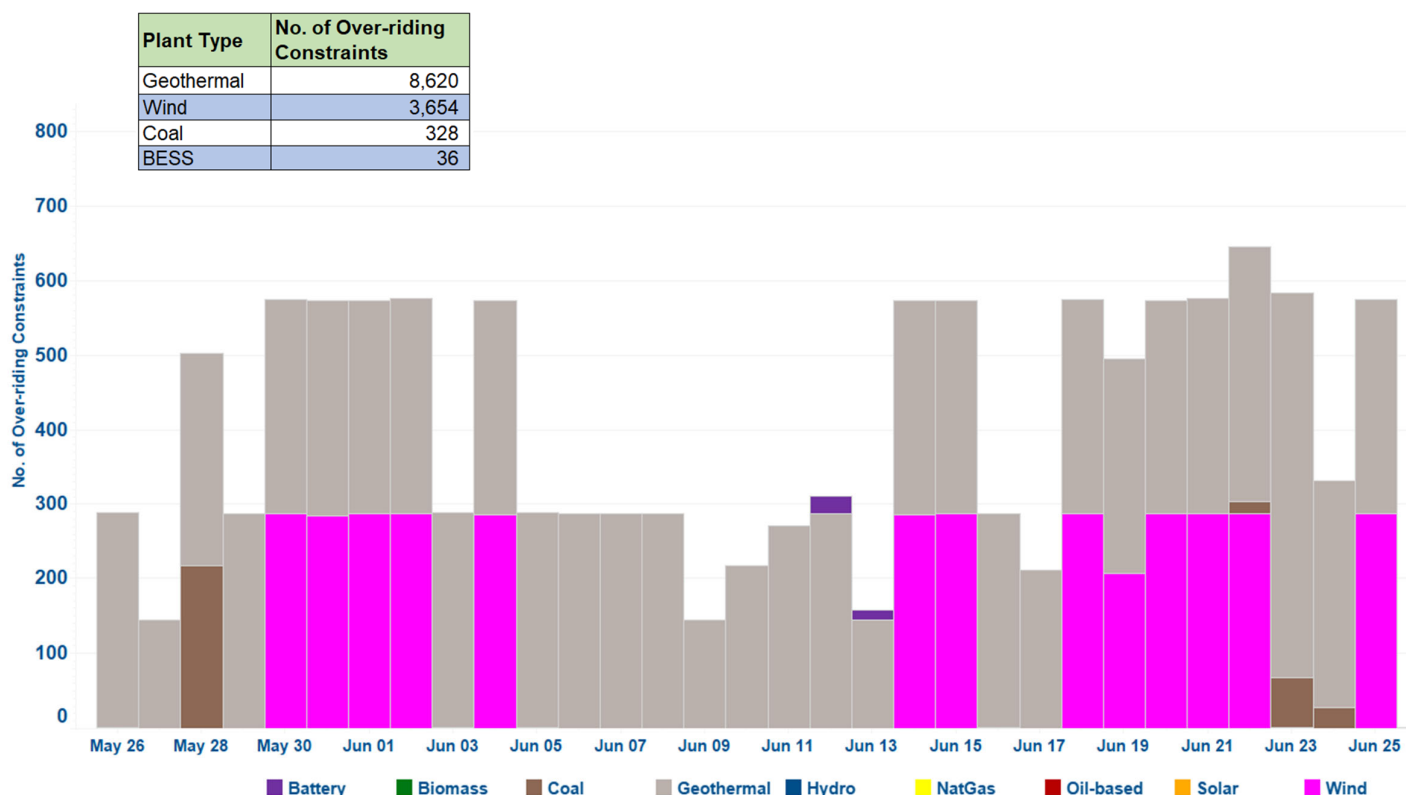
VISAYAS



by incident



by plant type

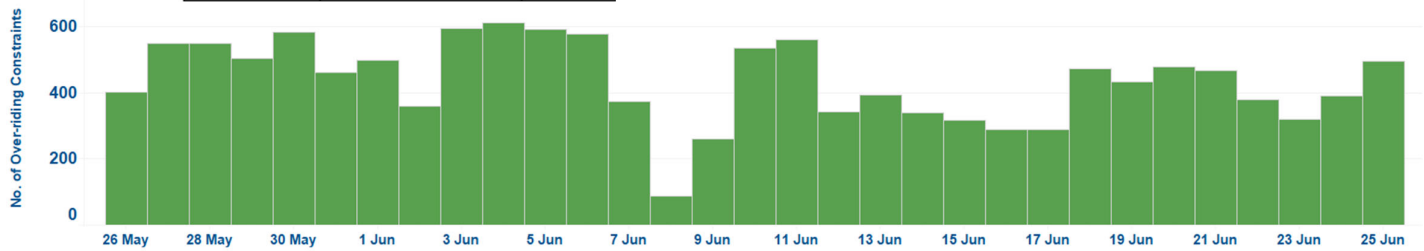


In Visayas, commissioning tests of geothermal and wind plants were the primary reason for most of the over-riding constraints in the region. The conduct of commissioning test of wind plant was scheduled intermittently during the billing period.

Emission test of KSPC CFTPP on 28 May was observed while ancillary service test of Kabankalan BESS (12 – 13 June) and PEDC CFTPP (22 – 24 June) contributed a small share of over-riding constraints.

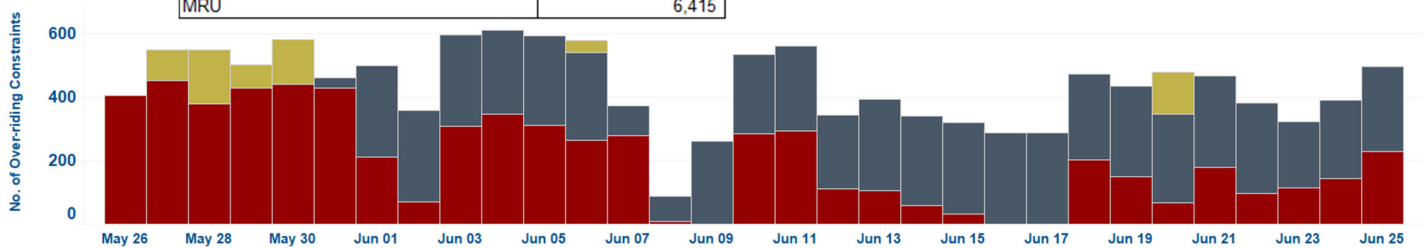
MINDANAO

| | No. of Over-riding Constraints | Date |
|---------|--------------------------------|---------|
| Maximum | 612 | 04 June |
| Average | 437 | |
| Minimum | 89 | 08 June |

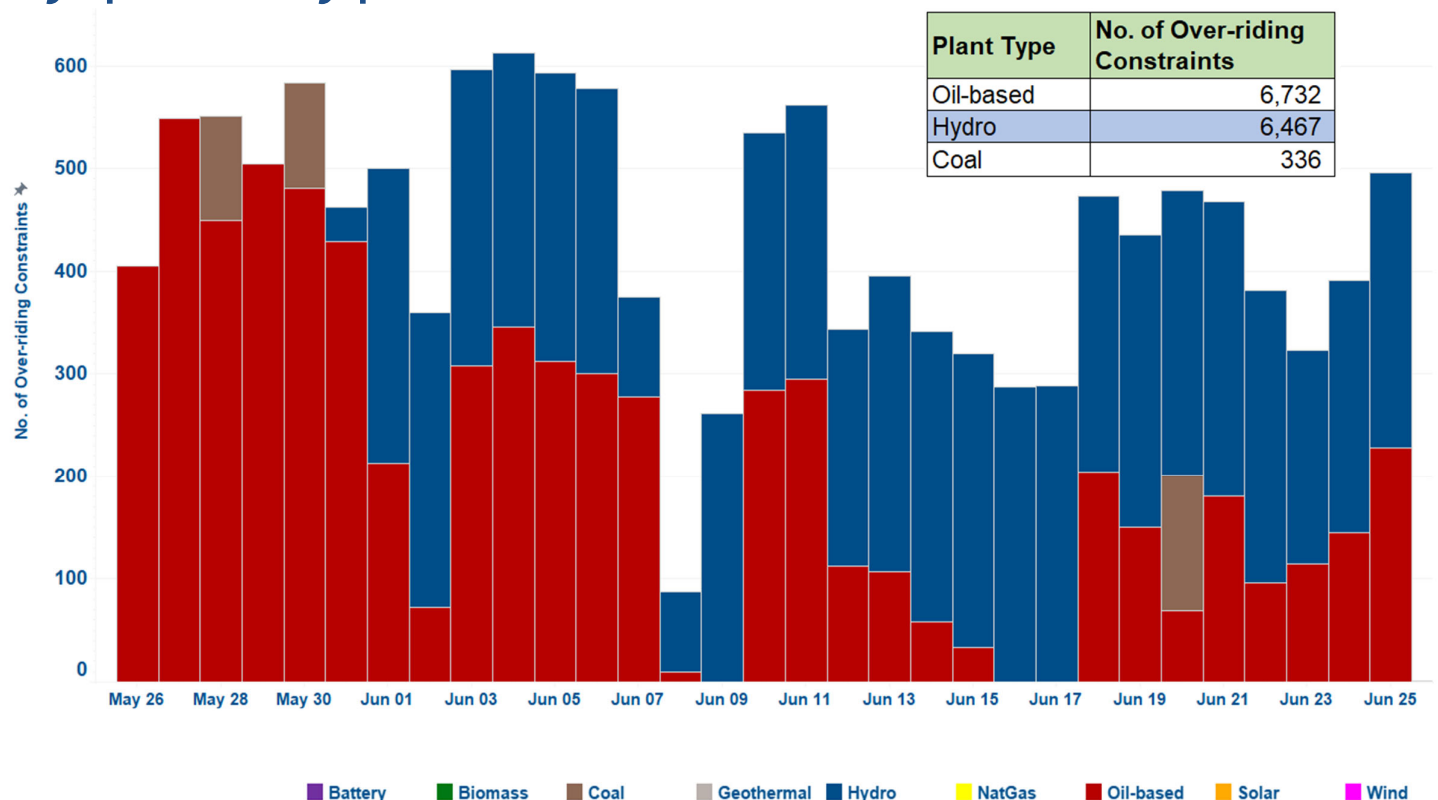


| Incident | No. of Over-riding Constraints |
|--|--------------------------------|
| Commissioning Test | 6,467 |
| Commercial and Regulatory Requirements | 653 |
| MRU | 6,415 |

by incident



by plant type



| Plant Type | No. of Over-riding Constraints |
|------------|--------------------------------|
| Oil-based | 6,732 |
| Hydro | 6,467 |
| Coal | 336 |

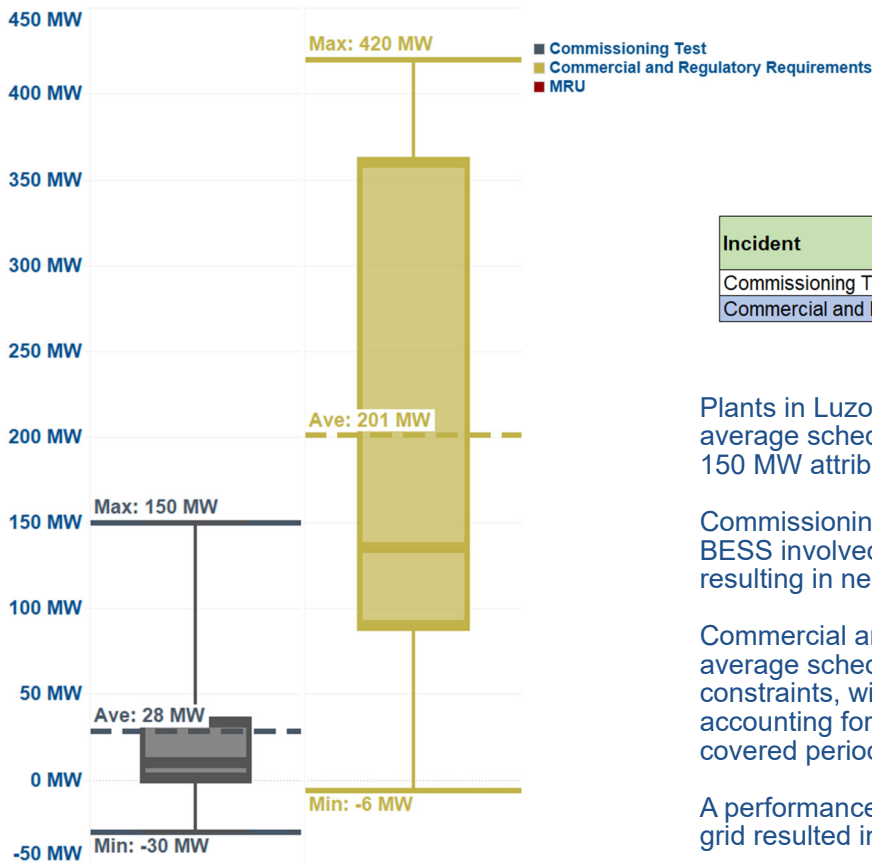
Similar to the previous billing periods, oil-based plants dispatched as MRU in Mindanao were primarily responsible for majority of over-riding constraints during the billing period to address the system voltage requirements in the Zamboanga and Agusan del Norte areas.

Commissioning tests for Siguil Hydro Power Plant (HPP) began in early June, contributing to the increase in over-riding constraints in the region.

SCHEDULED CAPACITIES

LUZON

by incident



Plants in Luzon undergoing commissioning tests had an average scheduled capacity of 28 MW, with a peak of 150 MW attributable to a coal plant.

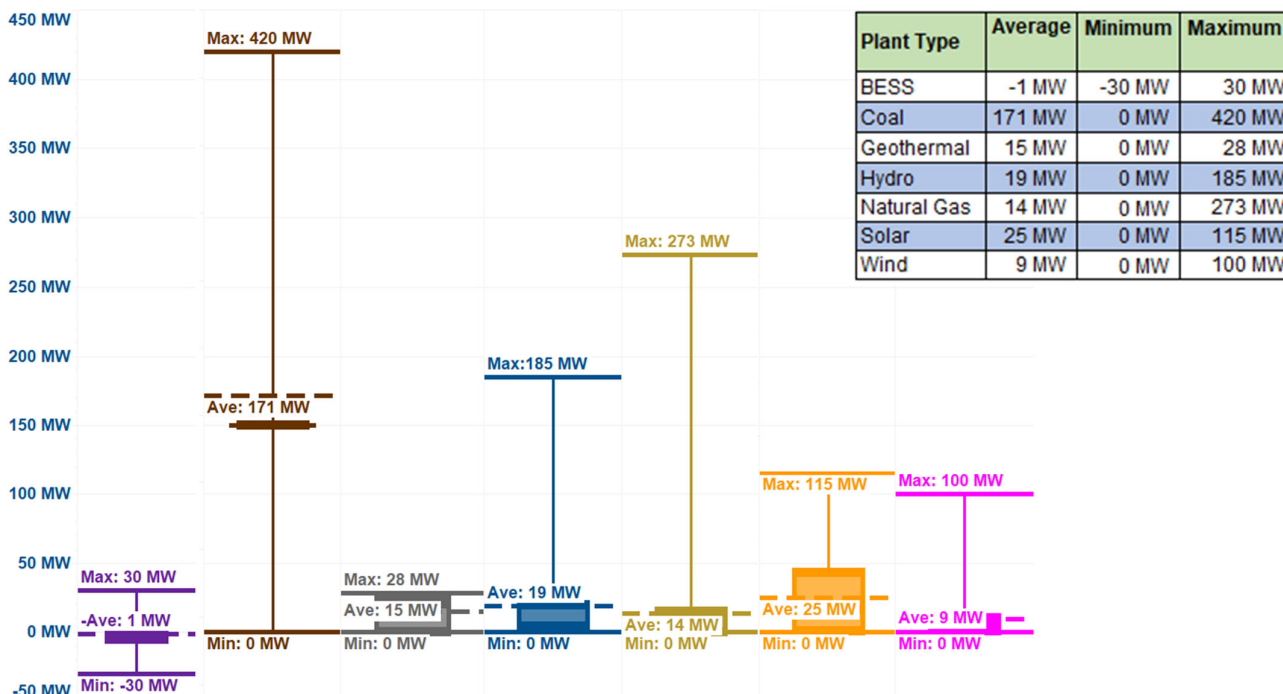
Commissioning tests for Gamu BESS and Lumban BESS involved testing their charging capabilities, resulting in negative scheduled capacity.

Commercial and regulatory requirements led to an average scheduled capacity of 201 MW for over-riding constraints, with emission tests for coal plants accounting for the highest scheduled capacity during the covered period.

A performance test of Magat BESS to charge from the grid resulted in a negative scheduled capacity of -6 MW.

by plant type

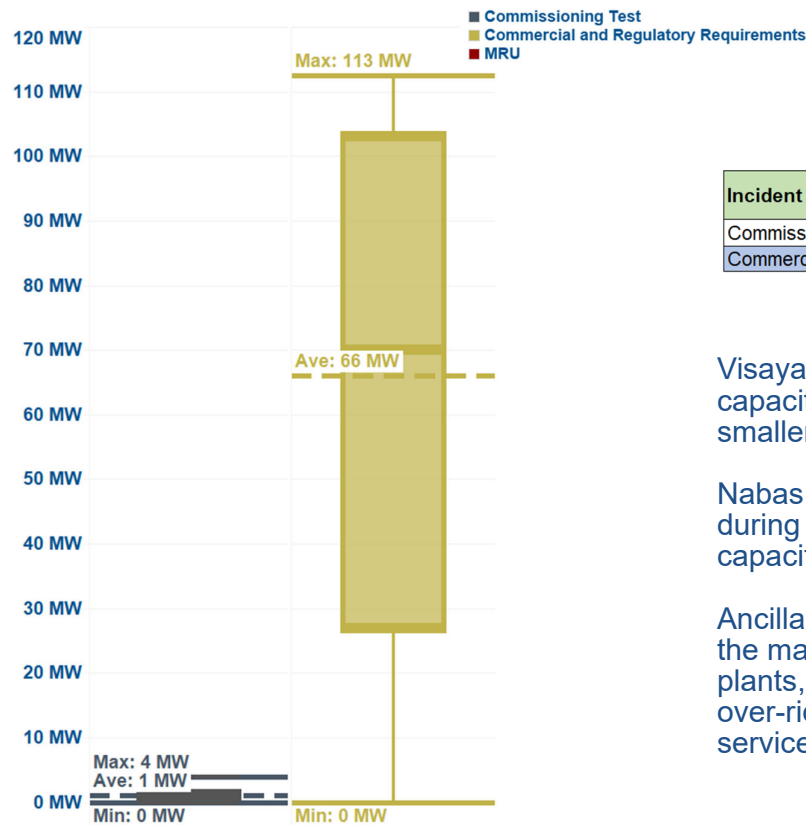
Legend: Battery (purple), Biomass (green), Coal (brown), Geothermal (grey), Hydro (blue), NatGas (yellow), Oil-based (red), Solar (orange), Wind (pink)



SCHEDULED CAPACITIES

VISAYAS

by incident



| Incident | Average | Minimum | Maximum |
|--|---------|---------|---------|
| Commissioning Test | 1 MW | 0 MW | 4 MW |
| Commercial and Regulatory Requirements | 66 MW | 0 MW | 113 MW |

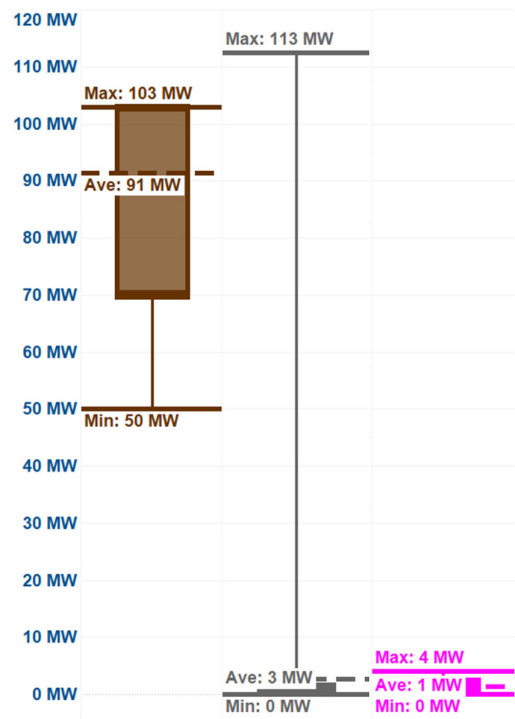
Visayas region plants had lower scheduled capacities compared to Luzon plants due to smaller plants with over-riding constraints.

Nabas U2 continued its commissioning test during the period, with an average scheduled capacity of 1 MW.

Ancillary service tests of Palinpinon GPP had the maximum scheduled capacity, while coal plants, on average, had the largest capacity over-ridden due to emission and ancillary service tests.

by plant type

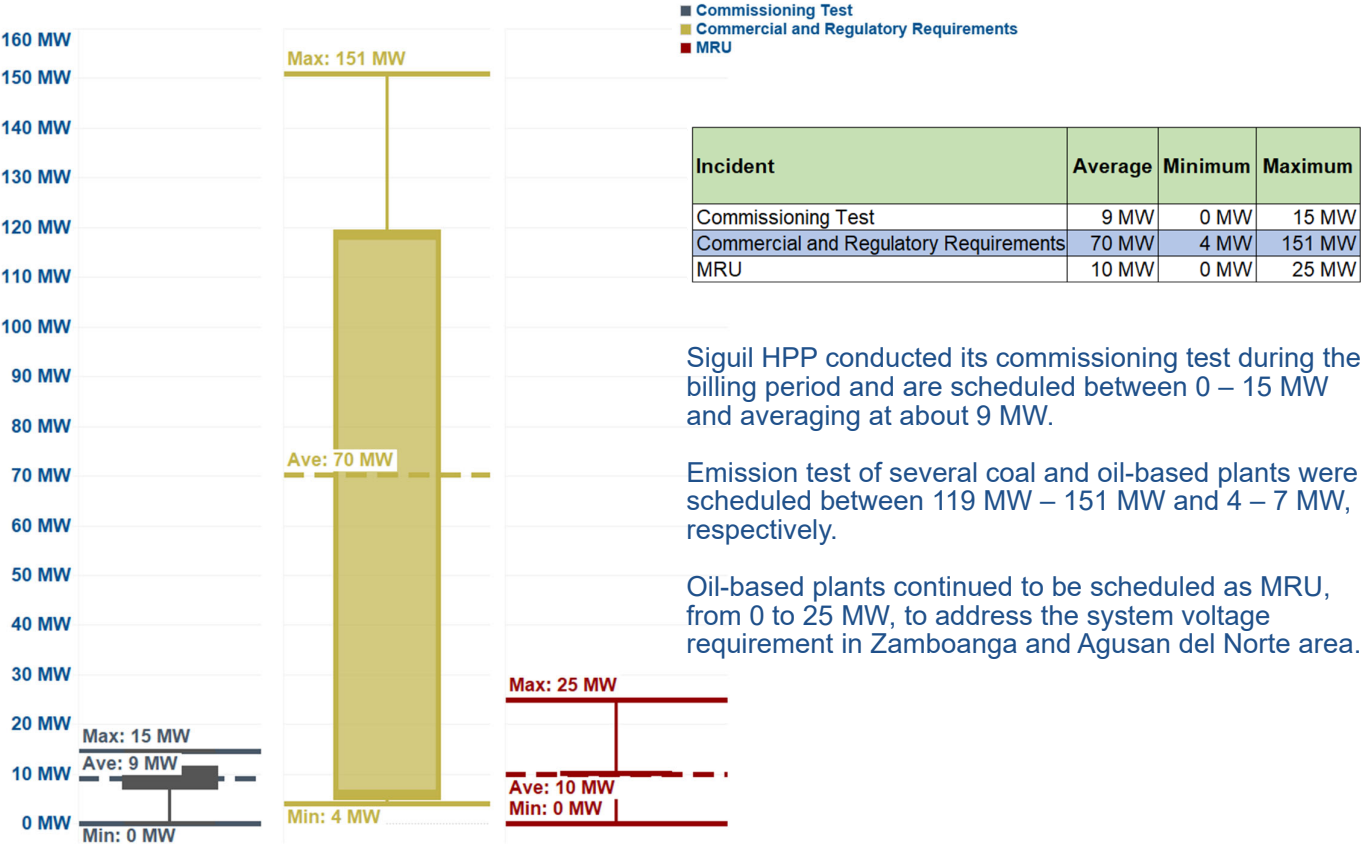
Battery Biomass Coal Geothermal Hydro NatGas Oil-based Solar Wind



| Plant Type | Average | Minimum | Maximum |
|------------|---------|---------|---------|
| Coal | 91 MW | 50 MW | 103 MW |
| Geothermal | 3 MW | 0 MW | 113 MW |
| Wind | 1 MW | 0 MW | 4 MW |

by incident

MINDANAO

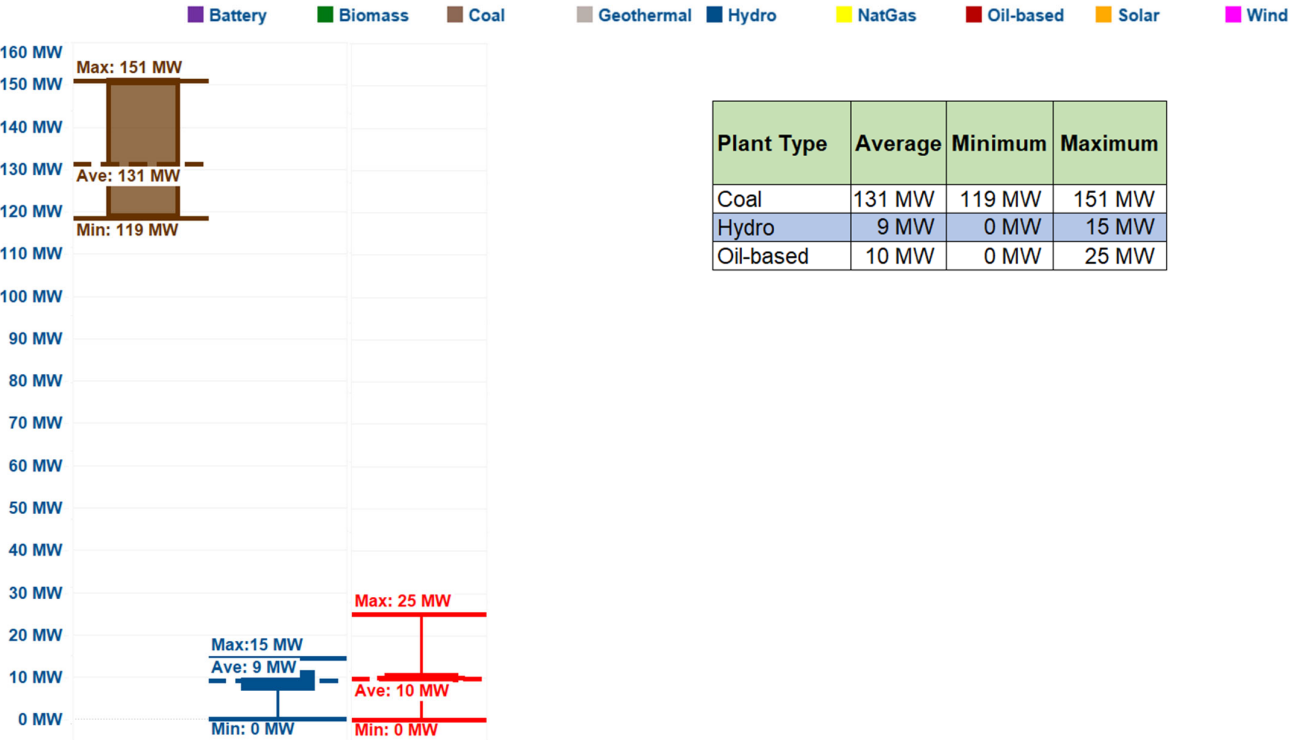


Sigul HPP conducted its commissioning test during the billing period and are scheduled between 0 – 15 MW and averaging at about 9 MW.

Emission test of several coal and oil-based plants were scheduled between 119 MW – 151 MW and 4 – 7 MW, respectively.

Oil-based plants continued to be scheduled as MRU, from 0 to 25 MW, to address the system voltage requirement in Zamboanga and Agusan del Norte area.

by plant type

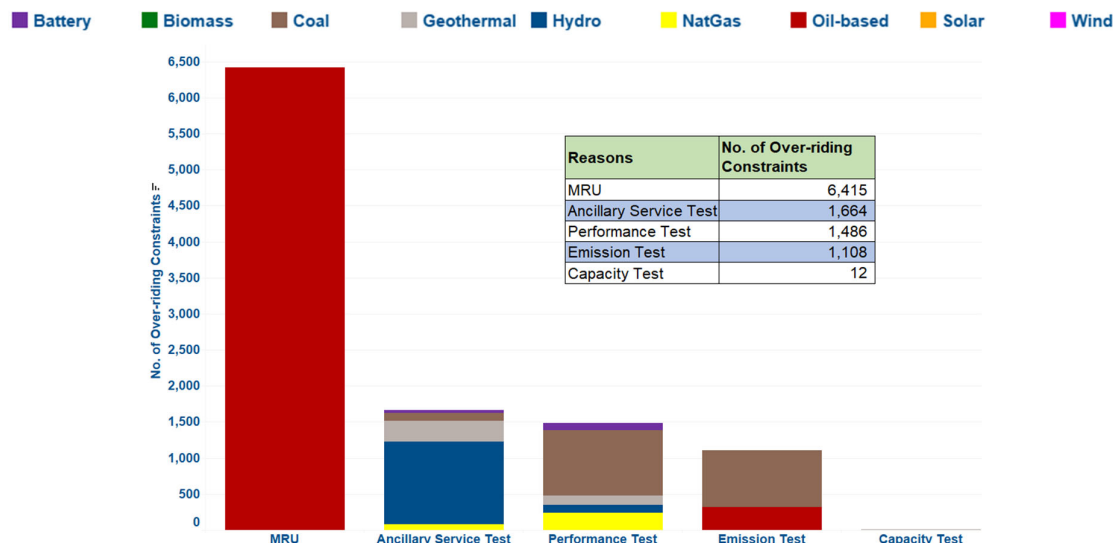


| Plant Type | Average | Minimum | Maximum |
|------------|---------|---------|---------|
| Coal | 131 MW | 119 MW | 151 MW |
| Hydro | 9 MW | 0 MW | 15 MW |
| Oil-based | 10 MW | 0 MW | 25 MW |

OVER-RIDING CONSTRAINTS

by incident

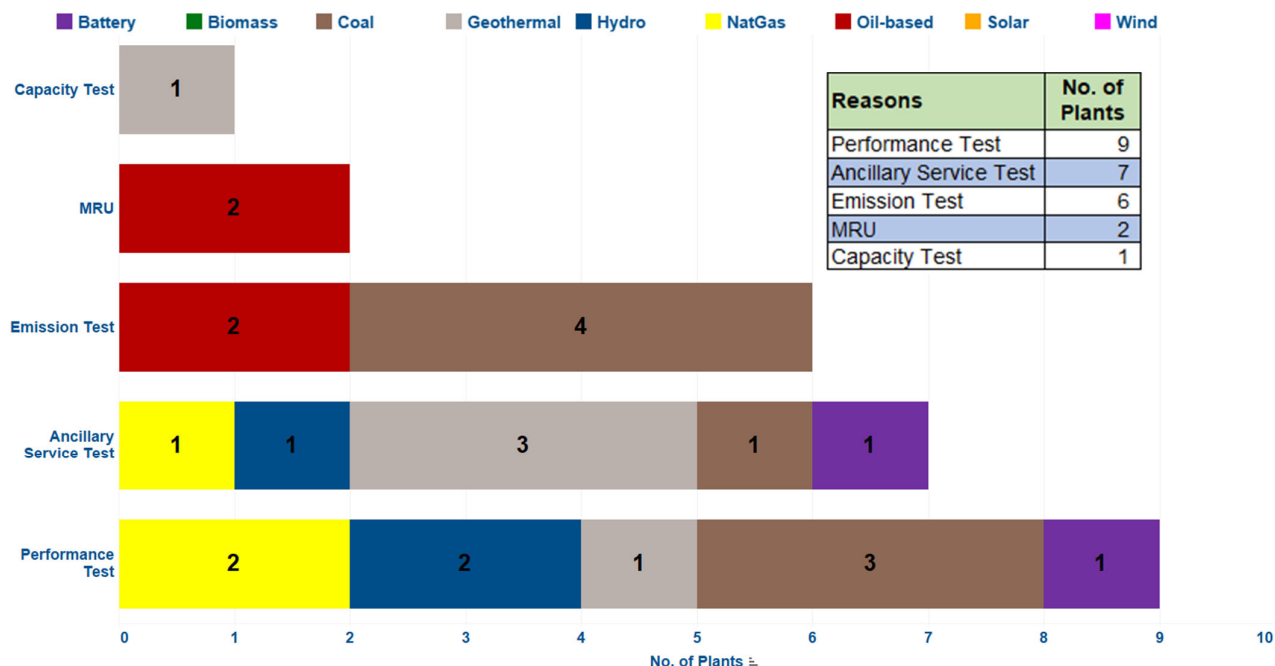
(excluding commissioning test)



The above chart reveals that MRUs (oil-based plants), ancillary service tests (BESS, coal, hydro, geothermal, and natural gas plants), performance tests (BESS, coal, geothermal, hydro, and natural plants), and emission test (coal and oil-based plants) were the main reasons for the majority of over-riding constraints during the billing period.

NUMBER OF PLANTS

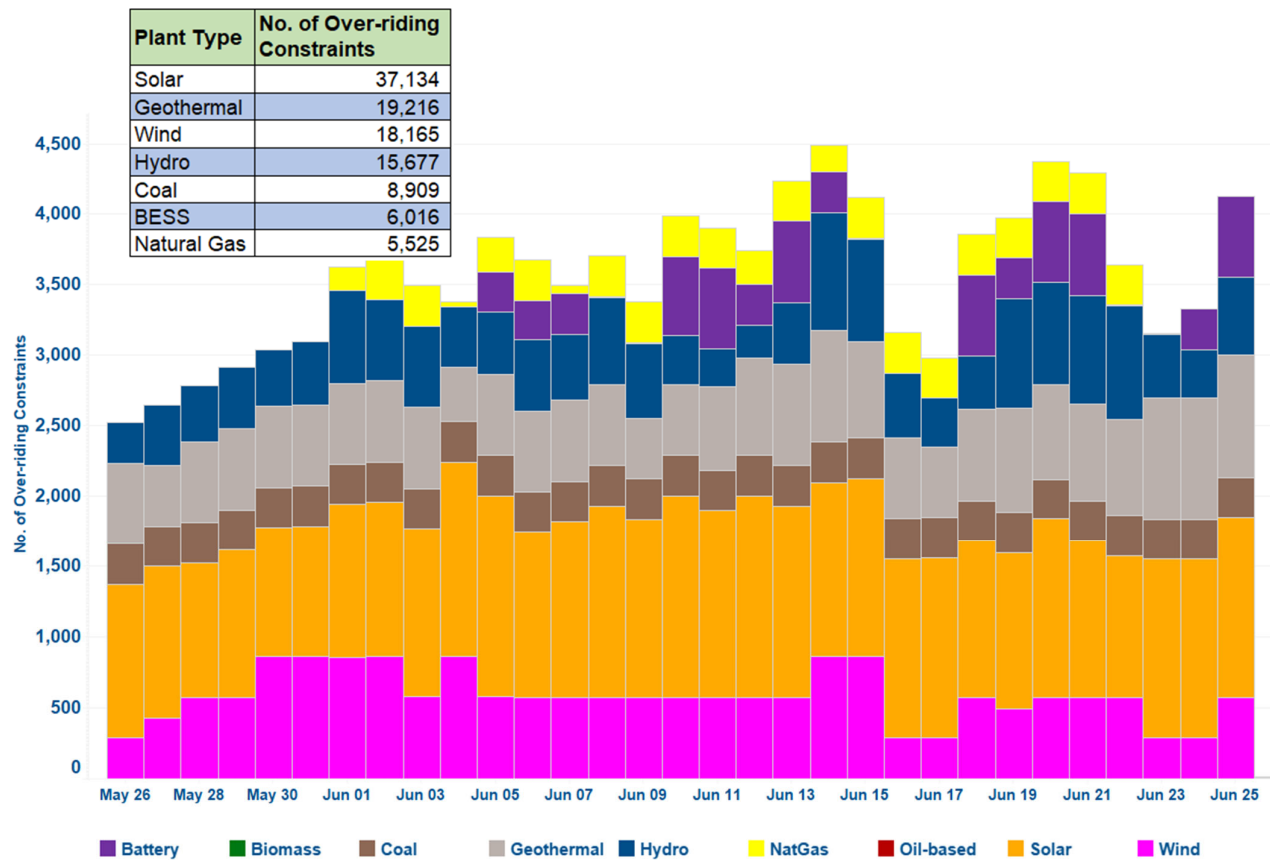
by incident



Emission test and some performance test, specifically heavy metal testing, were done during the billing period as part of the requirements of regulating agencies involving environmental and health standards. Ancillary service test was likewise conducted to determine the services a plant can commit in terms of adequacy, accuracy, timeliness, and other operational requirement. Meanwhile, MRUs are plants that are scheduled or dispatched to address threat to system security.

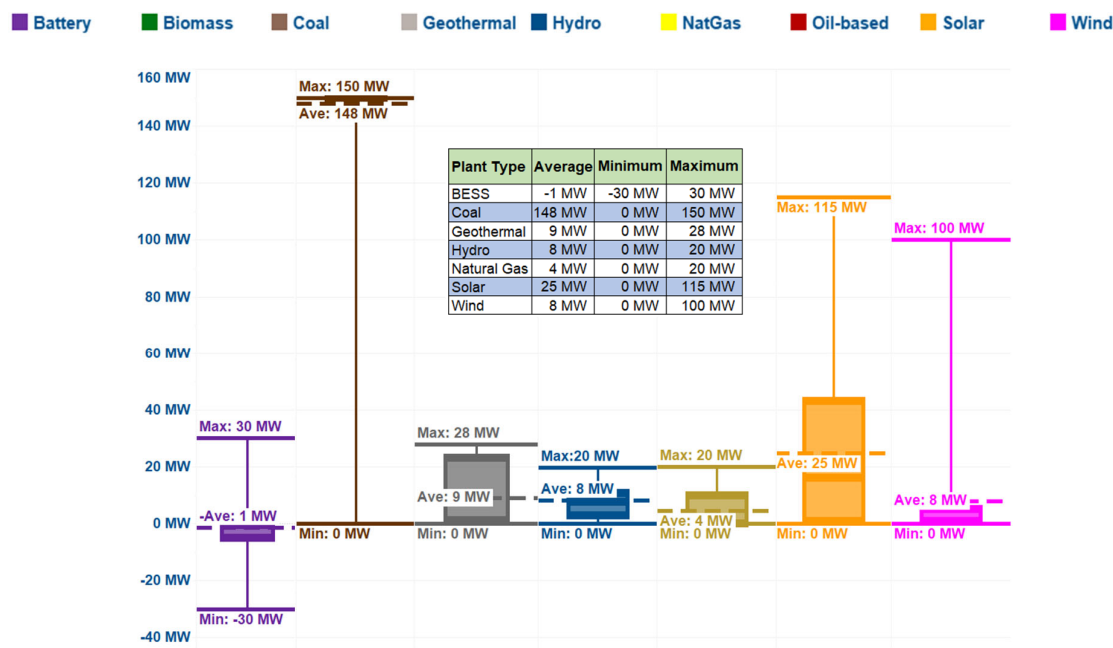
OVER-RIDING CONSTRAINTS

PLANTS UNDER COMMISSIONING TESTS



SCHEDULED CAPACITIES

PLANTS UNDER COMMISSIONING TESTS



Renewable plants such as solar, geothermal, hydro, and wind plants experienced frequent over-riding constraints imposition related to commissioning tests during the billing period, accounting for seventy-four percent (74%) of the total impositions, while conventional plants accounted for twelve (12%), and system storage, specifically battery, accounted for five percent (5%).

ANNEX A

Plants with Over-riding Constraints

| Plant/Unit Name | Plant Type | Registered Capacity ¹ |
|--|-------------|----------------------------------|
| LUZON | | |
| Ambuklao Hydroelectric Power Plant Unit 2 | Hydro | 37.5 |
| Angat Hydroelectric Power Plant Unit A | Hydro | 38.7 |
| 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 | 73.9 |
| 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 |
| Magat Battery Energy Storage System | Battery | 24 |
| Mariveles Coal Fired Thermal Power Plant Unit 1 | Coal | 316 |
| Matuno River Hydroelectric Power Plant | Hydro | 8.7 |
| Mariveles Coal-fired Thermal Power Plant Unit 3 | Coal | 150 |
| 20.397 MWp Orion Solar Power Plant | Solar | 16.2 |
| Subic New PV Power Plant Project | Solar | 62.7 |
| Pinugay Solar Power Plant | Solar | 71.6 |
| San Gabriel Avion Natural Gas-Fired Power Plant Unit 1 | Natural Gas | 47.2 |
| San Gabriel Avion Natural Gas-Fired Power Plant Unit 2 | Natural Gas | 45.8 |
| Calabanga Solar Power Project | Solar | 59.8 |
| Batangas Combined Cycle Power Plant Unit 1 | Natural Gas | 440 |
| 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 |
| Lumban Battery Energy Storage System (BESS) | Battery | 50 |
| Pagbilao Coal-Fired Power Plant 2 | Coal | 382 |
| Pagbilao 3 Power Plant | Coal | 420 |
| Palayan Binary Power Plant | Geothermal | 31 |
| 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 25 July 2024

| Plant/Unit Name | Plant Type | Registered Capacity 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 |
| Tiwi Geothermal Binary Power Plant | Geothermal | 16.7 |
| VISAYAS | | |
| Biliran Geothermal Power Plant Project Phase 1 | Geothermal | 2 |
| Cebu Coal-Fired Thermal Power Plant (Cebu CFTPP) Unit 1 | Coal | 103 |
| Cebu Coal-Fired Thermal Power Plant (Cebu CFTPP) Unit 2 | Coal | 103 |
| Kabankalan Battery Energy Storage System | Battery | 20 |
| Nasulo Geothermal Power Plant | Geothermal | 47.5 |
| Palinpinon Geothermal Power Plant I | Geothermal | 110.5 |
| Palinpinon Geothermal Power Plant II Unit 3 | Geothermal | 19.5 |
| 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 | Wind | 13.2 |
| Biliran Geothermal Power Plant Project Phase 1 | Geothermal | 2 |
| MINDANAO | | |
| Bunker-C Fired Diesel Power Plant Unit 1 | Geothermal | 2 |
| Bunker-C Fired Diesel Power Plant Unit 3 | Coal | 103 |
| Bunker-C Fired Diesel Power Plant Unit 4 | Coal | 103 |
| Bunker-C Fired Diesel Power Plant Unit 5 | Battery | 20 |
| Bunker-C Fired Diesel Power Plant Unit 8 | Geothermal | 47.5 |
| Bunker-C Fired Diesel Power Plant Unit 10 | Geothermal | 110.5 |
| GNPK's Coal Fired Power Plant Unit 3 | Geothermal | 19.5 |
| GNPK's Coal Fired Power Plant Unit 4 | Coal | 83.7 |
| Iligan Diesel Power Plant (Units 1-19) | Coal | 83.7 |
| Surigao Del Sur Power Plant | Wind | 13.2 |
| Mobile 2 Bunker C-Fired Power Plant Unit 1 | Geothermal | 2 |
| Phase 1 Coal-Fired Thermal Power Plant | Coal | 103 |
| Phase 2 Coal-Fired Power Plant | Coal | 103 |
| Siguil Hydroelectric Power Project | Battery | 20 |

ANNEX B

Plants Under Commissioning Tests

| Plant/Unit Name | Plant Type | Registered Capacity (MW) | No. of PCATC Extensions ² | No. of Days under Commissioning Tests |
|--|-------------|--------------------------|--------------------------------------|---------------------------------------|
| Gamu Battery Energy Storage System (BESS) | Battery | 40 | 4 | 84 |
| Lumban Battery Energy Storage System (BESS) | Battery | 50 | | 33 |
| Mariveles Coal-fired Thermal Power Plant Unit 3 | Coal | 150 | 5 | 144 |
| Palayan Binary Power Plant | Geothermal | 31 | 5 | 196 |
| Geothermal Binary Power Plant | Geothermal | 16.7 | | 35 |
| (Phase 1) Biliran Geothermal Power Plant Project | Geothermal | 2 | 1 | 189 |
| Angat Hydroelectric Power Plant Unit A | Hydro | 38.7 | | 9 |
| Ibulao Hydroelectric Power Project | Hydro | 6 | 3 | 100 |
| Matuno River Hydroelectric Power Plant | Hydro | 8.7 | 7 | 341 |
| Siguil Hydroelectric Power Project | Hydro | 15.3 | | 37 |
| Batangas Combined Cycle Power Plant Unit 1 | Natural Gas | 440 | 1 | 55 |
| Cagayan North Solar Power Plant | Solar | 115 | 5 | 234 |
| Cayanga-Bugallon Solar Power Plant | Solar | 73.9 | 3 | 235 |
| Concepcion 1 Solar Power Project | Solar | 76 | | 30 |
| Laoag Solar Power Plant | Solar | 58.6 | 1 | 84 |
| 20.397 MWp Orion Solar Power Plant | Solar | 16.2 | 3 | 221 |
| Subic New PV Power Plant Project | Solar | 62.7 | 2 | 119 |
| Calabanga Solar Power Project | Solar | 59.8 | 1 | 72 |
| Pinugay Solar Power Plant | Solar | 71.6 | | 21 |
| Balaoi and Caunayan Wind Power Project Phase 1 | Wind | 80 | 11 | 480 |
| Caparispisan II Wind Power Project | Wind | 50 | 2 | 103 |
| Wind Power Plant Phase 2 (Nabas-2) | Wind | 13.2 | 2 | 83 |

² Based on IEMOP's status of plants under commissioning test as of 25 June 2024

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