

# **Market Surveillance Committee Monthly Over-riding Constraints Report**

**26 January to 25 February 2023**

**May 2023**

This Report is prepared by the  
Philippine Electricity Market Corporation –  
Market Assessment Group for the  
Market Surveillance Committee

The Philippine Electricity Market Corporation reserves all rights to this document and the information contained herein. Printing/photocopying of this document is subject to the Document and Records Management Policy. Copies downloaded from the document management system or obtained by other means shall be considered Uncontrolled.



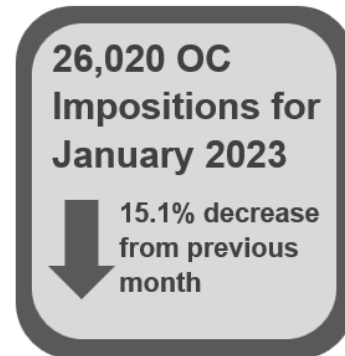
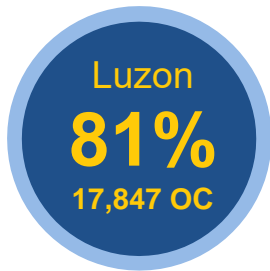
**LUZON**

**VISAYAS**

# MONTHLY REPORT ON OVER-RIDING CONSTRAINTS

## IMPOSITIONS BY CATEGORY AND REGION

**22,098 Total Impositions**  
8.6% of which were **SECURITY LIMIT**

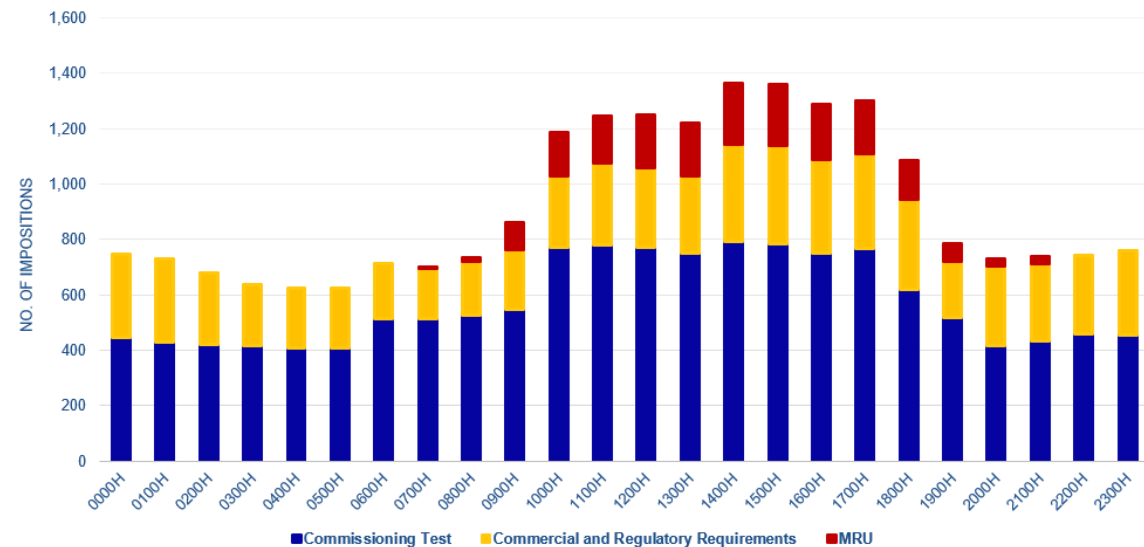


A decrease of **15.1%** in over-riding constraint (OC) impositions was observed during the February 2023 billing period involving **27 Luzon** and **11 Visayas plants**.

**Note:** Under the Dispatch Protocol Manual Issue 16.0, imposition of over-riding constraints falls into 2 categories – 1) security limit i.e., MRU and other types as may be recommended by SO and 2) non-security limit. Security limit is imposed to address possible threats in system security while non-security limit is related to 1) generating unit limitations, 2) commercial and regulatory requirements, and lastly, 3) conduct of commissioning test of plants.

The monitoring of the over-riding constraints is based on the data and information provided by MO (i.e., real time market results and MMS-input files on security limits) and SO (i.e., SO Data for Market Monitoring).

## IMPOSITIONS BY HOUR



Majority of over-riding constraints imposed over a 24-hour period were caused by the conduct of commissioning tests which constituted **62% of the total impositions**.

Since majority of commissioning tests were imposed on solar plants, the impositions during the covered period were more prevalent during peak hours.

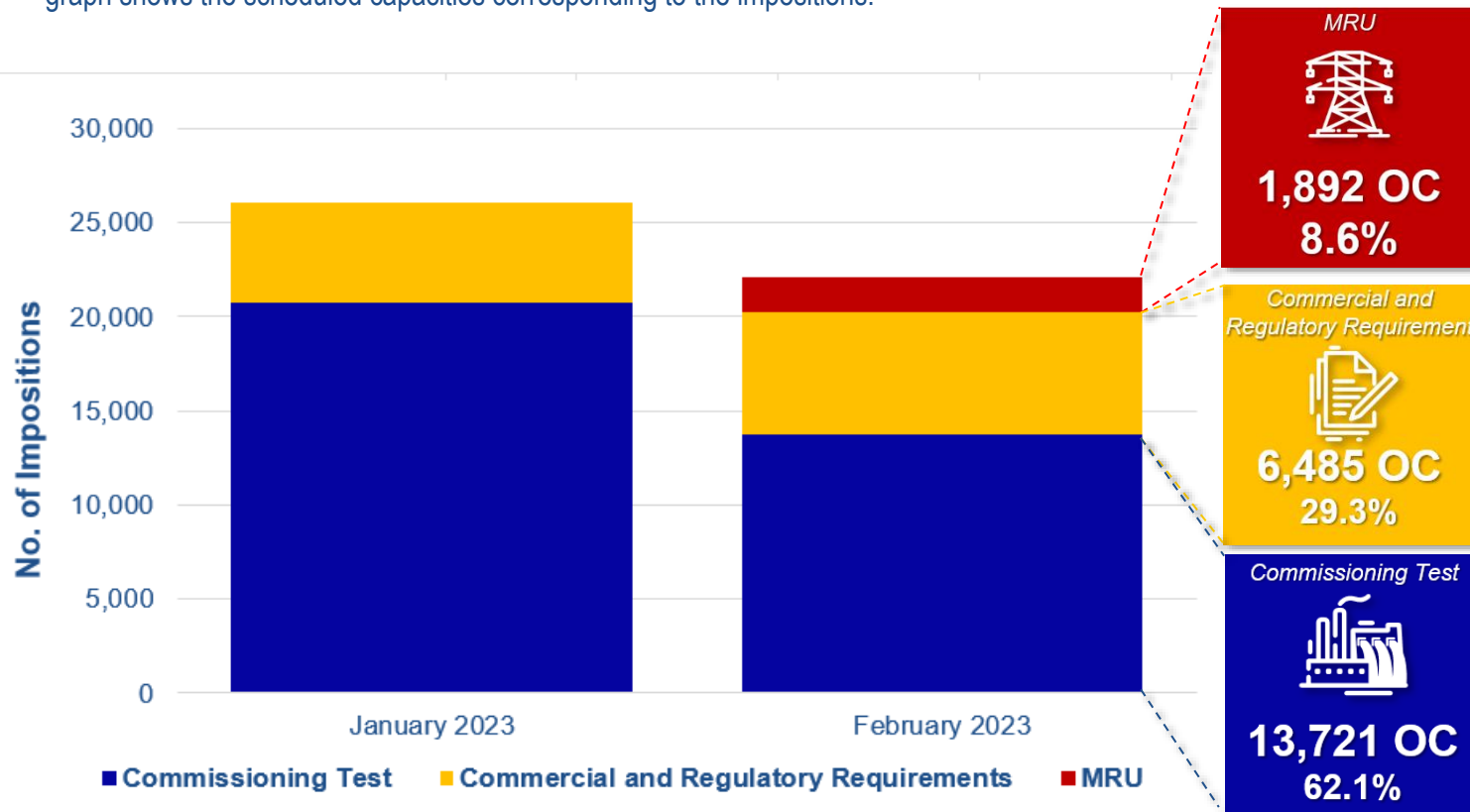
Similar with commissioning tests, it was observed that during peak hours, most impositions were due to commercial and regulatory requirement tests of coal plants and the scheduling of oil-based plants as Must-Run Units (MRUs)

# MONTHLY REPORT ON OVER-RIDING CONSTRAINTS

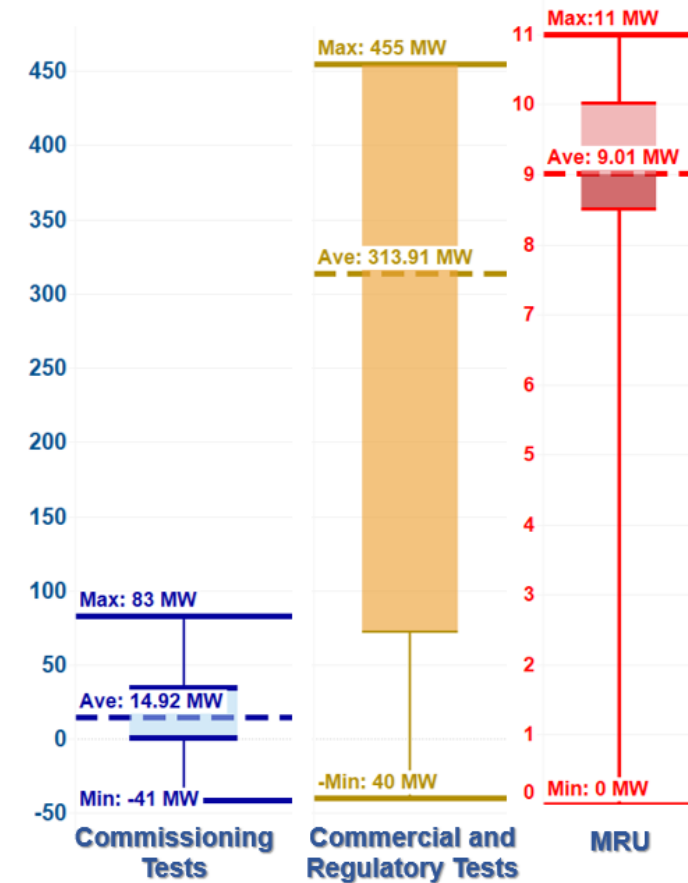
## IMPOSITIONS BY INCIDENT

A decrease in impositions related to commissioning test was observed following the completion of testing period of one (1) solar plant. MRU impositions were also observed during the period, specifically in the Visayas Region, to address the thermal limit of lines in the area. On the other hand, the number of incidents related to commercial and regulatory requirements (e.g., Ancillary Services Test, Net Contracted and Performance Test) increased.

Incidents related to commercial and regulatory requirements were imposed on plants with large capacities. It was however noted that despite the high registered capacities of plants, majority were over-ridden to lower capacities. Meanwhile, commissioning tests were mostly undertaken by renewable energy plants with relatively low registered capacities. The graph shows the scheduled capacities corresponding to the impositions.

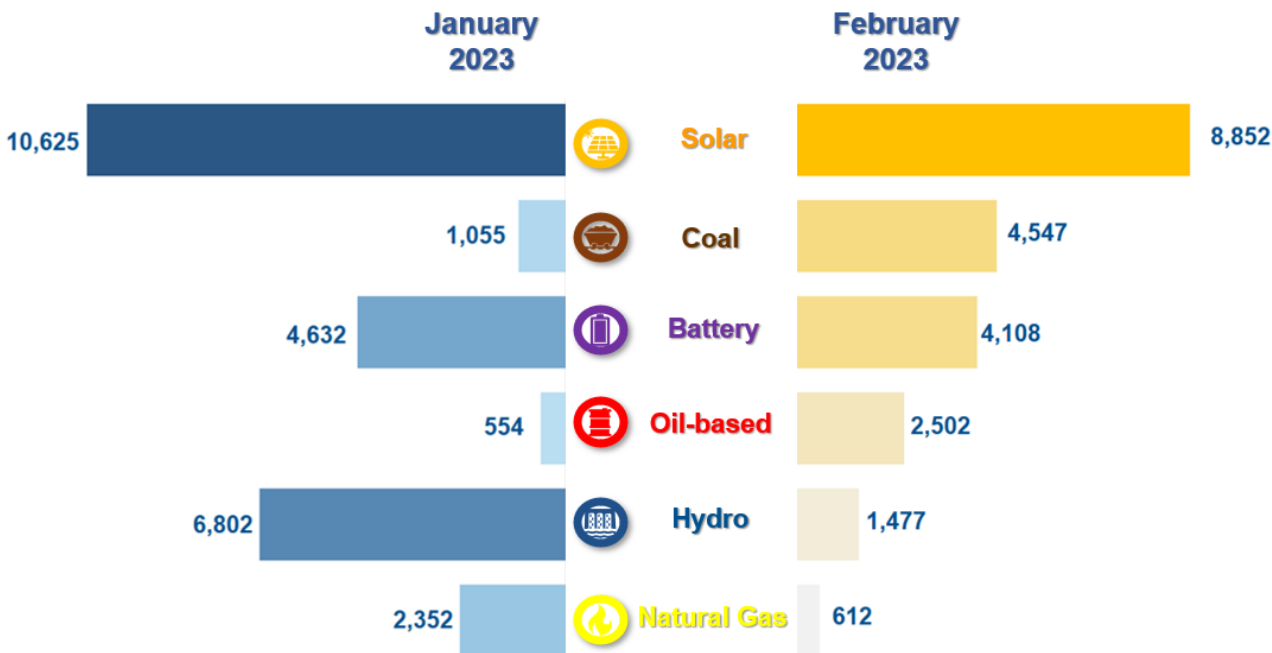


## SCHEDULED CAPACITIES (MW)



# MONTHLY REPORT ON OVER-RIDING CONSTRAINTS

## IMPOSITIONS BY PLANT TYPE



Overall, over-riding constraints impositions for most of plant types decreased, while coal and oil-based plants recorded respective increases, during the February 2023 billing period. The reasons for the impositions per plant types were as follows:

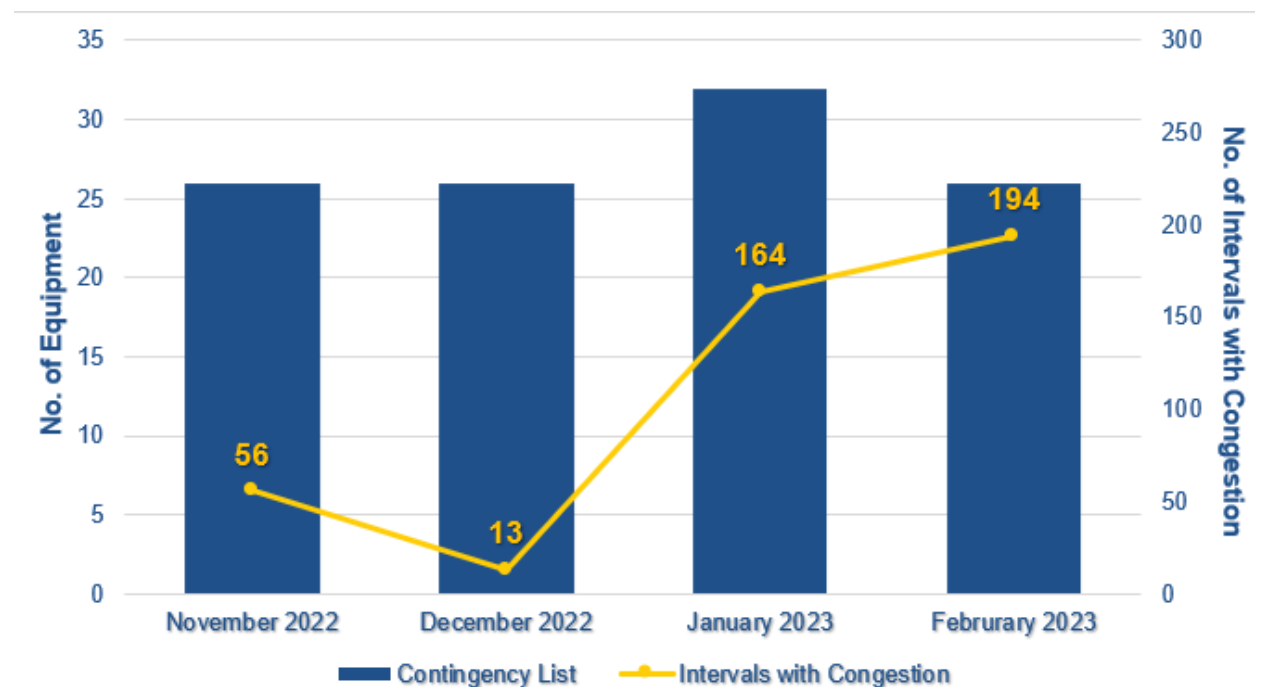
- With the continuing conduct of commissioning tests, **Solar** plants remained to be imposed with majority of the over-riding constraints during peak hours. However, the decrease noted for this plant type was mainly attributable to the completion of commissioning test period of one (1) plant.
- A considerable increase in the number of performance and ancillary service tests undertaken by **coal** plants was observed during the billing period.
- Expiration of commissioning test of one (1) **battery** energy storage facility was the reason for the decrease in the over-riding constraints for this resource type.
- Increase in the number of impositions related to **oil-based** plants was due to MRU impositions to one (1) plant.
- Impositions attributable to **Hydro** plants decreased, mainly caused by expired validity of commissioning test for one (1) plant.
- Decrease in the number of impositions to **natural gas** plants was due to lesser conduct of net dependable capacity tests.

# MONTHLY REPORT ON OVER-RIDING CONSTRAINTS

## IMPOSITIONS TO SYSTEM EQUIPMENT

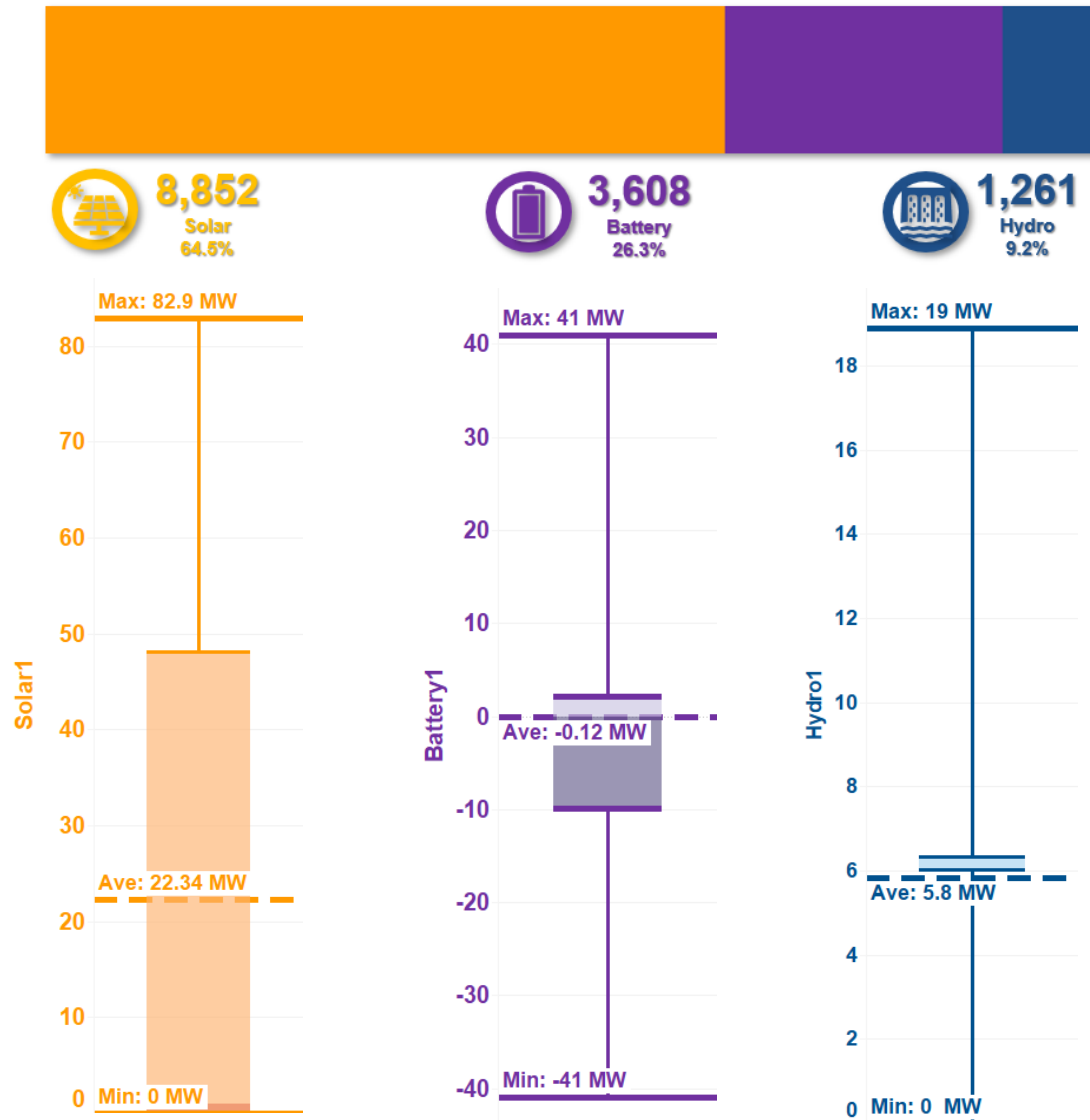
**26 equipment** were observed to have been imposed with N-1 contingency during the February 2023 billing period which have contributed to congestions for **194 intervals** and is **lower** compared with the previous billing period. Subsequently, these congestions have triggered the imposition of **Price Substitution Methodology (PSM)** for **33 intervals**.

Contingency List
230kV Bauang-La Trinidad Line 1
230kV Bauang-La Trinidad Line 2
230kV Binga-La Trinidad Line 1
230kV Binga-La Trinidad Line 2
230kV Concepcion-Mexico Line 1
230kV Concepcion-Mexico Line 2
Nagsaag_EHV Transformer 1
Nagsaag_EHV Transformer 2
Kadampat_EHV Transformer 1
Kadampat_EHV Transformer 2
Kadampat_EHV Transformer 3
Kadampat_EHV Transformer 4
230kV San Manuel-Concepcion Line 1
230kV San Manuel-Concepcion Line 2
230kV Sucat-Binan Line 1
230kV Sucat-Binan Line 2
230kV Sucat-Binan Line 3
230kV Sucat-Binan Line 4
230kV Binan-Dasmarinas Line 1
230kV Binan-Dasmarinas Line 2
230kV Calamba-Binan Line 1
230kV Calamba-Binan Line 2
230kV Makban-Calamba Line 1
230kV Makban-Calamba Line 2
230kV Makban-Lumban Line 1
230kV Makban-Lumban Line 2



# MONTHLY REPORT ON OVER-RIDING CONSTRAINTS

## PLANTS ON COMMISSIONING TEST



There was an observed **decrease in the number of impositions of over-riding constraints** related to **commissioning tests**, logging a total of **13,721 impositions** with an average scheduled capacity of **14.67 MW**.

Majority of impositions related to commissioning tests were attributable to solar plants, followed by battery energy storage system facilities, and hydro plants.

Based on the updates provided by the Independent Electricity Market Operator of the Philippines (IEMOP) and the System Operator as of 06 March 2023, the following were the updates on the **status of power plants under commissioning tests**:

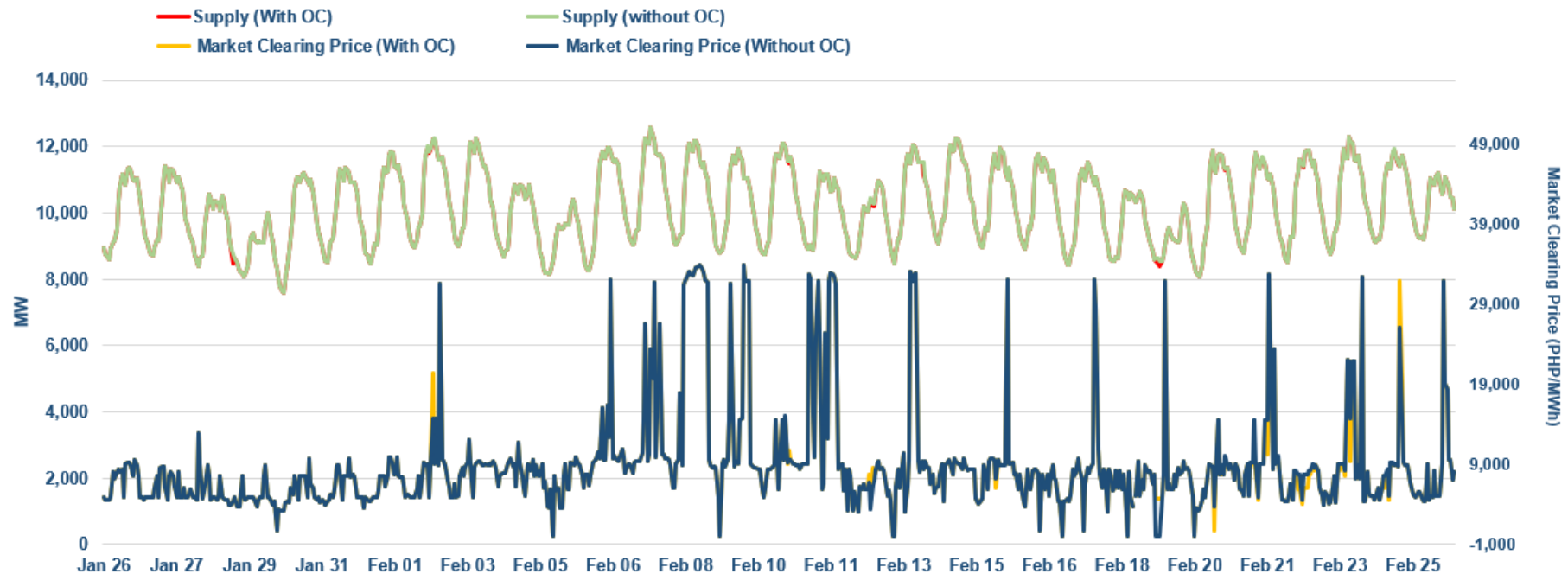
- **1 solar plant** completed their commissioning tests while another **1 plant** is **undergoing commissioning test**.
- **1 battery energy storage facility** has an expired Provisional Certificate of Approval to Connect (PCATC) while **1 plant started its commissioning test period** and another **1 plant** was issued with **extended commissioning test period**.
- **1 hydro plant** has extended its commissioning test while the remaining **1 hydro plant conducted commissioning test due to rehabilitation**.

Generally, the scheduled capacities imposed to plants undergoing commissioning tests were noted to be less than their registered capacity.



# MONTHLY REPORT ON OVER-RIDING CONSTRAINTS

## PRICE IMPACT ON THE MARKET



\* The simulation is assumed to be unconstrained

\*\* OC imposed with Commissioning Tests are not altered due to their restriction to submit thru MMS

Date of Imposition	Plant Type
Feb 10 - 12, Feb 19 - 26	Coal
Feb 2 - 3, Feb 23	Hydro
Feb 8, 10, 13, 16, 22, 23	Natural Gas
Feb 20 - 25	Oil - based

Generally, there are minimal noted effects on market prices when plants are imposed with over-riding constraints. The effects may vary based on the offers of the over-ridden plants. It may be observed that when Hydro and Oil-based plants were imposed with OC, there was a decrease noted in the resulting market prices, at an average of 58.8 PHP/MWh. Looking at the effects of OCs in terms of the supply, it was noted that the same caused a decrease in the supply due to the scheduling of subject plants to lower levels of operations than being dispatched at their available capacities. However, it may also be noted that when coal plants' offers are over-ridden, market prices tend to increase brought about by the dispatch of plants with higher offer prices.



**MANDANA**

# MONTHLY REPORT ON OVER-RIDING CONSTRAINTS

## IMPOSITIONS BY CATEGORY AND REGION

# 10,961

## Total

## Impositions

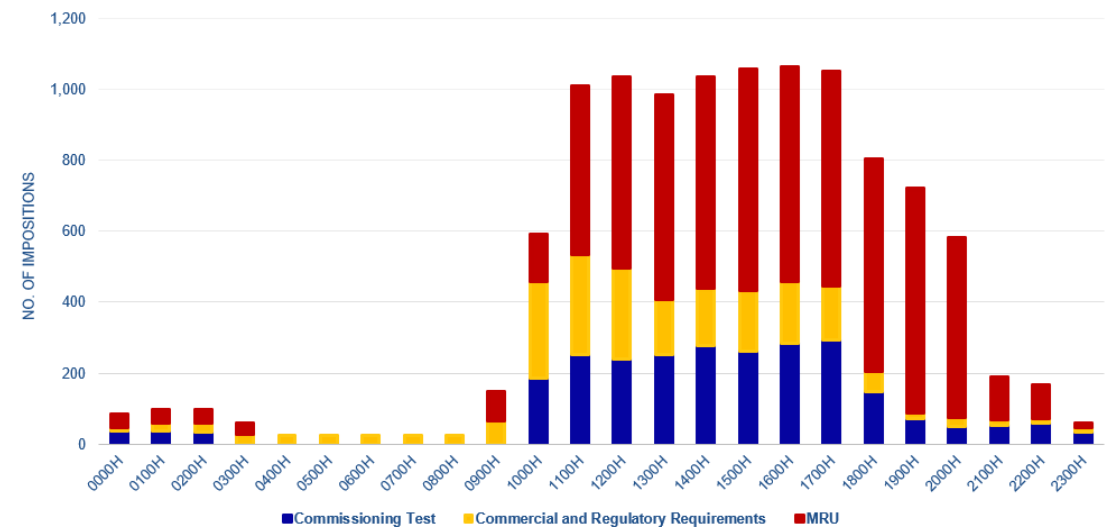
## 58% of which were SECURITY limits.

During the first month of WESM Mindanao commencement, it was observed that the region has imposed 10,961 over-riding constraints, to which 6,532 were due to security limits.

**Note:** Under the Dispatch Protocol Manual Issue 16.0, imposition of over-riding constraints falls into 2 categories – 1) security limit i.e., MRU and other types as may be recommended by SO and 2) non-security limit. Security limit is imposed to address possible threats in system security while non-security limit is related to 1) generating unit limitations, 2) commercial and regulatory requirements, and lastly, 3) conduct of commissioning test of plants.

The monitoring of the over-riding constraints is based on the data and information provided by MO (i.e., real time market results and MMS-input files on security limits) and SO (i.e., SO Data for Market Monitoring).

## IMPOSITIONS BY HOUR



Majority of over-riding constraints imposed over a 24-hour period in Mindanao were caused by Must-Run Units imposed to power plants which constituted **58% of the total impositions**.

It can be observed that most impositions, may it be non-security or security limits, were imposed during peak hours.

As for the non-security limit impositions, most of the tests conducted were done during 1000H – 1800H.

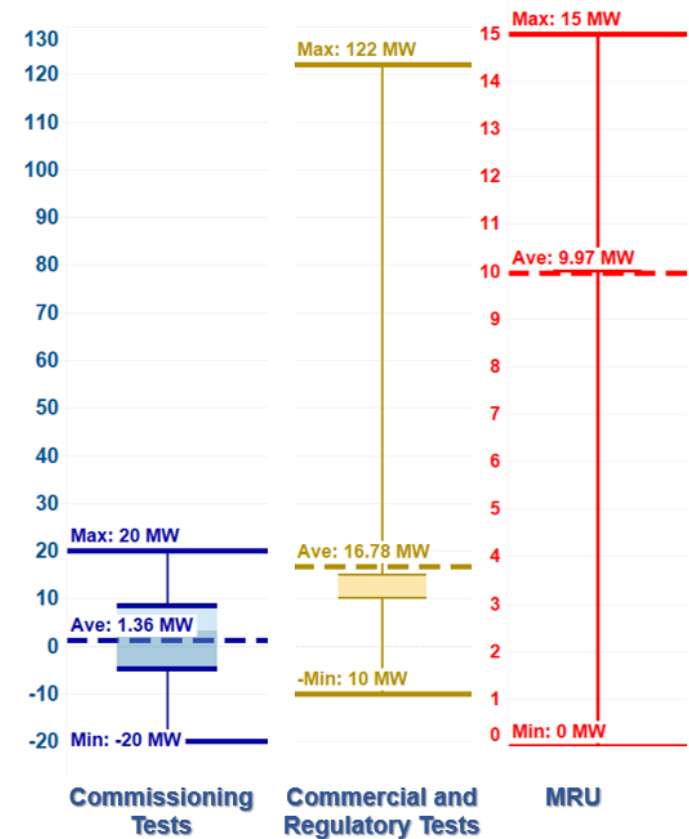
# MONTHLY REPORT ON OVER-RIDING CONSTRAINTS

## IMPOSITIONS BY INCIDENT

Most of the OC in Mindanao was due to MRU impositions to address the system voltage requirement in the region. Commercial and regulatory requirements tests conducted were attributed to the performance and grid compliance tests. For plants under commissioning tests, it was noted that only two (2) plants were under this categorization.

Incidents related to commercial and regulatory requirements were imposed on plants with large capacities which had greater market impact than plants under commissioning test. It was however noted that despite the large capacities of plants, majority were over-ridden to smaller capacities. Meanwhile, commissioning tests were mostly undertaken by renewable energy plants with relatively lower capacities. The graph shows the scheduled capacities corresponding to the impositions.

## SCHEDULED CAPACITIES



**MRU**  
**6,352**  
**58.0%**



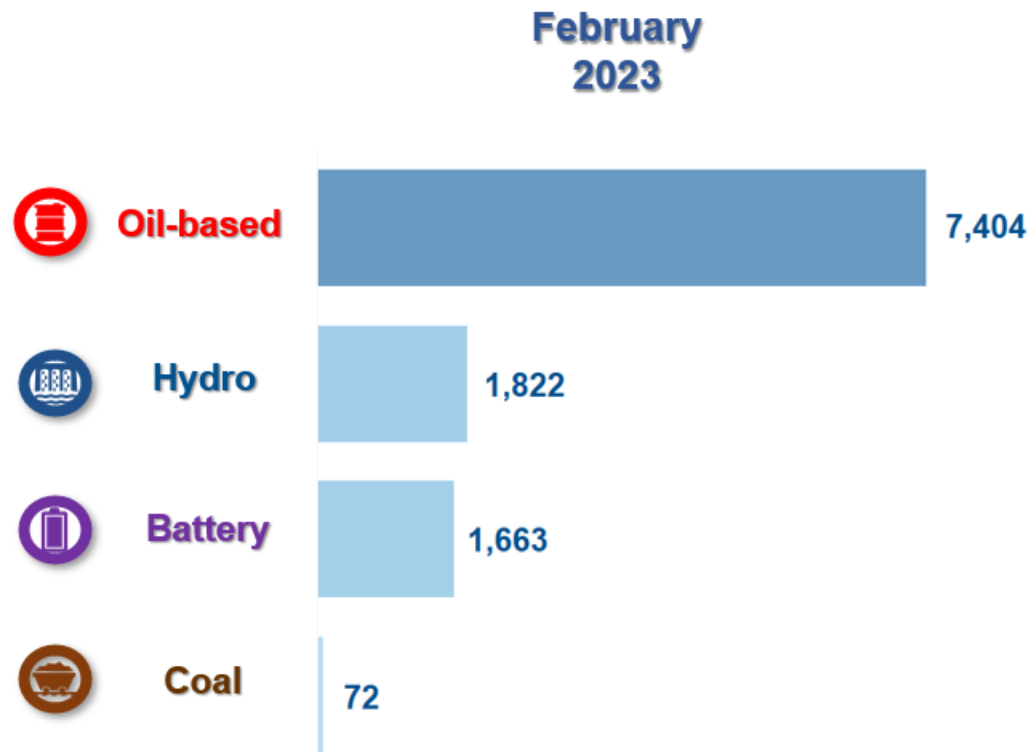
**Commercial and  
Regulatory Requirement**  
**2,035**  
**18.6%**



**Commissioning Test**  
**2,574**  
**23.4%**

# MONTHLY REPORT ON OVER-RIDING CONSTRAINTS

## IMPOSITIONS BY PLANT TYPE

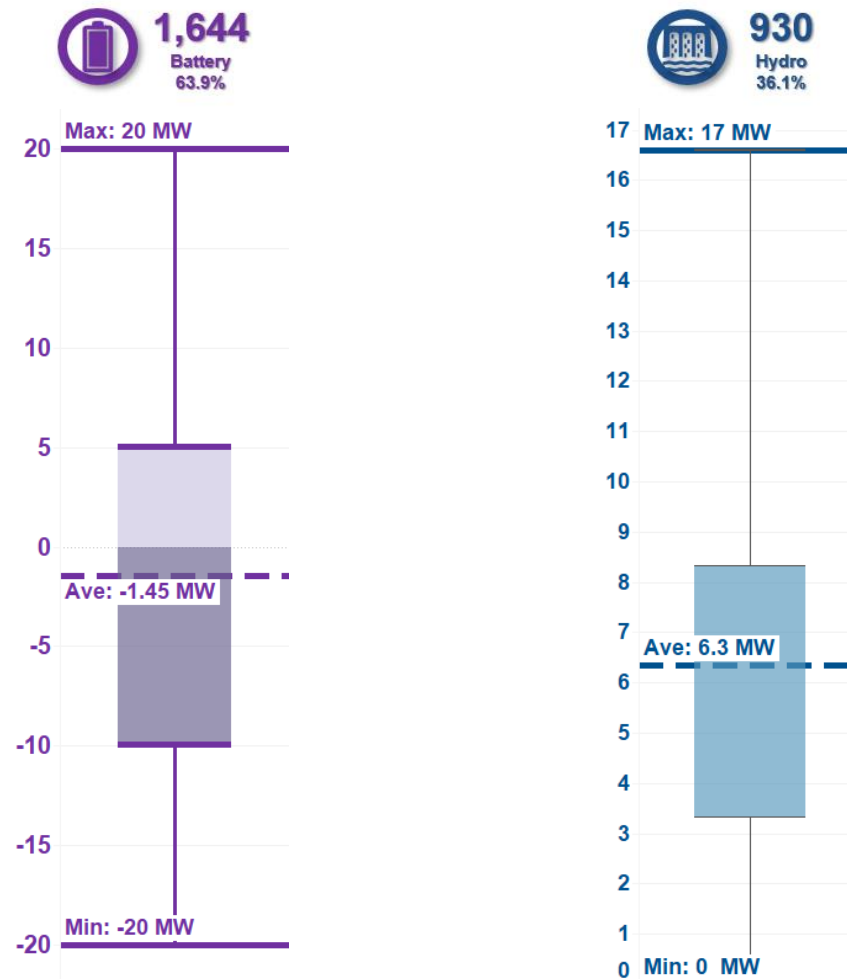


Majority of the impositions in the Mindanao region were attributable to oil-based plants, followed by hydro and battery, and with coal plants having a small share in the total impositions. The following are the reasons for the impositions per plant:

- Impositions to Oil-based plants were as MRUs in order address the system voltage requirement of the grid.
- Conduct of commissioning test of one (1) battery energy storage facility and one (1) hydro were noted during the billing period.
- Impositions related to coal plants were due to the conduct of performance tests.

# MONTHLY REPORT ON OVER-RIDING CONSTRAINTS

## PLANTS ON COMMISSIONING TEST



A total of **2,574** number of impositions of over-riding constraints was observed related to **commissioning tests**, with an average scheduled capacity of **1.36 MW**.

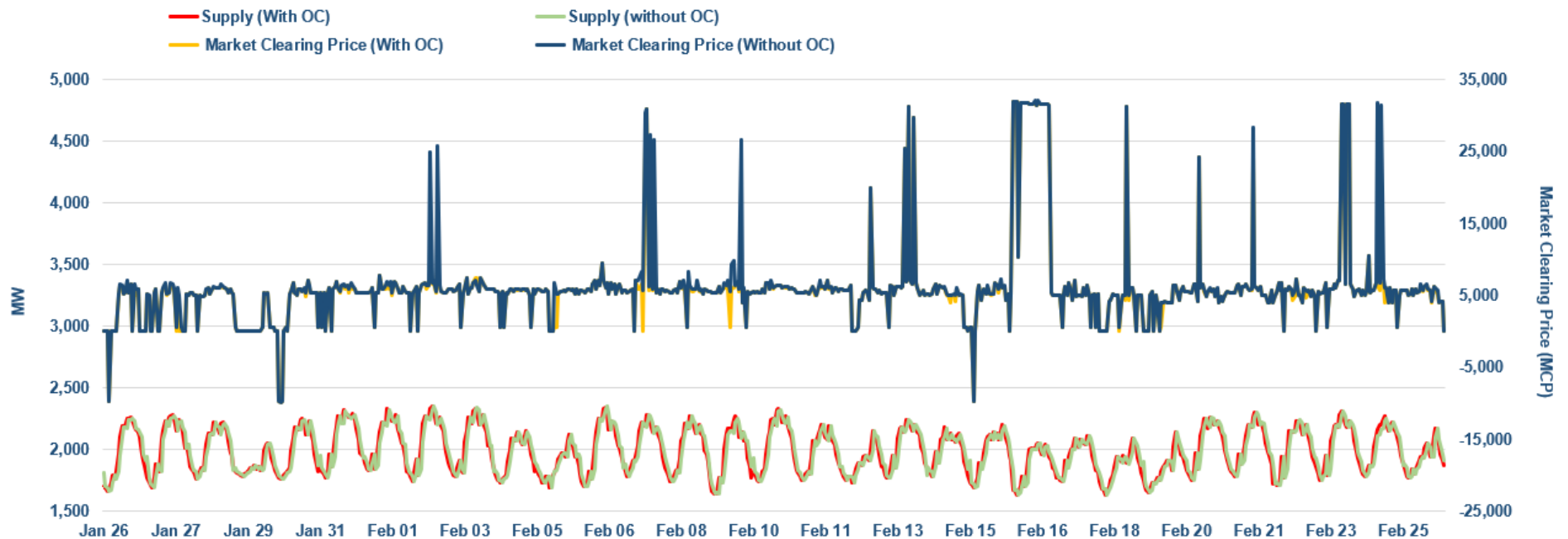
Majority of impositions related to commissioning tests were attributable to battery energy storage facility and hydro.

Based on the updates provided by the Independent Electricity Market Operator of the Philippines (IEMOP) and the System Operator as of 06 March 2023, both the **one (1) battery energy storage facility** and **one (1) hydro plant** are currently conducting their respective commissioning tests.

Generally, the scheduled capacities imposed to plants undergoing commissioning tests were noted to be less than their registered capacity.

# MONTHLY REPORT ON OVER-RIDING CONSTRAINTS

## PRICE IMPACT ON THE MARKET



\* The simulation is assumed to be unconstrained

\*\* OC imposed with Commissioning Tests are not altered due to their restriction to submit thru MMS

Date of Imposition	Plant Type
Feb 24	Coal
Jan 26 -27, Feb 3 - 9, Feb 20	Hydro
Feb 8, 10, 13, 16, 22, 23	Natural Gas
Jan 26 - Feb 25	Oil - based

It was noted that when Hydro and Oil-based plants were imposed with OC, there was an observed decrease in the resulting market prices that yielded a price difference of 1,344 PHP/MWh. On the supply perspective, a supply difference averaging at 1.45 MW was noted. The variability in supply difference is attributed to the offer behavior of the plants being imposed with OCs.

# MONTHLY REPORT ON OVER-RIDING CONSTRAINTS

## ANNEX A. LIST OF PLANTS WITH OVER-RIDING CONSTRAINTS<sup>1</sup>

Plant/Unit Name	Plant Type	Registered Capacity (MW) <sup>2</sup>
LUZON		
Angat Hydroelectric Power Plant Unit A	Hydro	18.0
Concepcion Battery Energy Storage System	Battery	60.0
Currimao 2 Solar Power Plant	Solar	68.7
Magapit Battery Energy Storage System	Battery	40.0
Maris Canal HEPP Unit 1	Hydro	4.3
Maris Canal HEPP Unit 2	Hydro	4.3
Mariveles Coal-Fired Power Plant 2	Coal	316.0
AES Masinloc Advancion Energy Storage Array	Battery	10.0
Pasuquin Solar Power Plant	Solar	92.4
Pantabangan Hydro Electric Power Plant Unit 1	Hydro	60.0
Pantabangan Hydro Electric Power Plant Unit 2	Hydro	60.0
Bunker-C Fired Thermal Power Plant (BCFDPP)	Oil-Based	110.0
PPGC Diesel Power Plant	Oil-Based	50.0
Pagbilao Coal-Fired Power Plant 1	Coal	382.0
Pagbilao Coal-Fired Power Plant 2	Coal	382.0
Pagbilao 3 Power Plant	Coal	420.0
Batangas Diesel Power Plant Unit 1	Oil-Based	5.5

<sup>1</sup> In accordance with the Market Operator Information Disclosure and Confidentiality (MO IDC) Manual Issue 7.0

<sup>2</sup> As of 02 March 2023



# MONTHLY REPORT ON OVER-RIDING CONSTRAINTS

Plant/Unit Name	Plant Type	Registered Capacity (MW) <sup>2</sup>
Batangas Diesel Power Plant Unit 2	Oil-Based	5.5
SBPL Coal Fired Power Plant	Coal	455.0
SLPGC Circulating Fluidized Bed (CFB) Coal-Fired Power Plant 2	Coal	149.6
San Gabriel Power Plant	Natural Gas	420.0
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	264.0
San Lorenzo Combined-Cycle Gas Turbine Power Plant Unit 50	Natural Gas	265.0
San Lorenzo Combined-Cycle Gas Turbine Power Plant Unit 60	Natural Gas	265.0
<b>VISAYAS</b>		
Ormoc Battery Energy Storage System	Battery	40.0
CEDC Coal-Fired Thermal Power Plant Unit 1	Coal	82.0
CEDC Coal-Fired Thermal Power Plant Unit 2	Coal	82.0
CEDC Coal-Fired Thermal Power Plant Unit 3	Coal	82.0
EAUC Bunker C-Fired Power Plant Unit 1	Oil-Based	11.5
EAUC Bunker C-Fired Power Plant Unit 2	Oil-Based	11.0
EAUC Bunker C-Fired Power Plant Unit 3	Oil-Based	11.5
EAUC Bunker C-Fired Power Plant Unit 4	Oil-Based	11.5
PEDC Coal-Fired Thermal Power Plant Unit 1	Coal	83.7
PEDC Coal-Fired Thermal Power Plant Unit 2	Coal	83.7
Timbaban Hydro Power Plant	Hydro	18.9

# MONTHLY REPORT ON OVER-RIDING CONSTRAINTS

Plant/Unit Name	Plant Type	Registered Capacity (MW) <sup>2</sup>
<b>MINDANAO</b>		
Misamis Occidental Bunker C-Fired Diesel Power Plant 3	Oil-Based	15.5
Misamis Occidental Bunker C-Fired Power Plant 2	Oil-Based	15.7
Bunker-C Fired Diesel Power Plant Unit 1	Oil-Based	10.7
Bunker-C Fired Diesel Power Plant Unit 2	Oil-Based	10.7
Bunker-C Fired Diesel Power Plant Unit 3	Oil-Based	10.7
Bunker-C Fired Diesel Power Plant Unit 4	Oil-Based	10.7
Bunker-C Fired Diesel Power Plant Unit 5	Oil-Based	10.7
Bunker-C Fired Diesel Power Plant Unit 6	Oil-Based	10.7
Bunker-C Fired Diesel Power Plant Unit 7	Oil-Based	10.7
Bunker-C Fired Diesel Power Plant Unit 8	Oil-Based	10.7
Bunker-C Fired Diesel Power Plant Unit 9	Oil-Based	10.7
Bunker-C Fired Diesel Power Plant Unit 10	Oil-Based	10.7
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
Agus VI Hydroelectric Power Plant Unit 1	Hydro	31.5
Agus VI Hydroelectric Power Plant Unit 2	Hydro	31.1
Agus VI Hydroelectric Power Plant Unit 3	Hydro	50
Agus VI Hydroelectric Power Plant Unit 4	Hydro	25
Agus VI Hydroelectric Power Plant Unit 5	Hydro	43.8
Agus VII Hydroelectric Power Plant Unit 1	Hydro	26.1

# MONTHLY REPORT ON OVER-RIDING CONSTRAINTS

Plant/Unit Name	Plant Type	Registered Capacity (MW) <sup>2</sup>
Agus VII Hydroelectric Power Plant Unit 2	Hydro	15
Jasaan Battery Energy Storage System	Battery	20