Monthly Monitoring Report on Over-riding Constraints for May 2022 Billing Month

26 April to 25 May 2022

December 2022

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

CONTENTS
OF THE REPORT

MONTHLY REPORT ON OVER-RIDING CONSTRAINTS

Philippine Electricity Market Corporation

OCR-2022-05

IMPOSITIONS BY CATEGORY AND REGION

24,786 Total Impositions

87.8% which are non-security limits

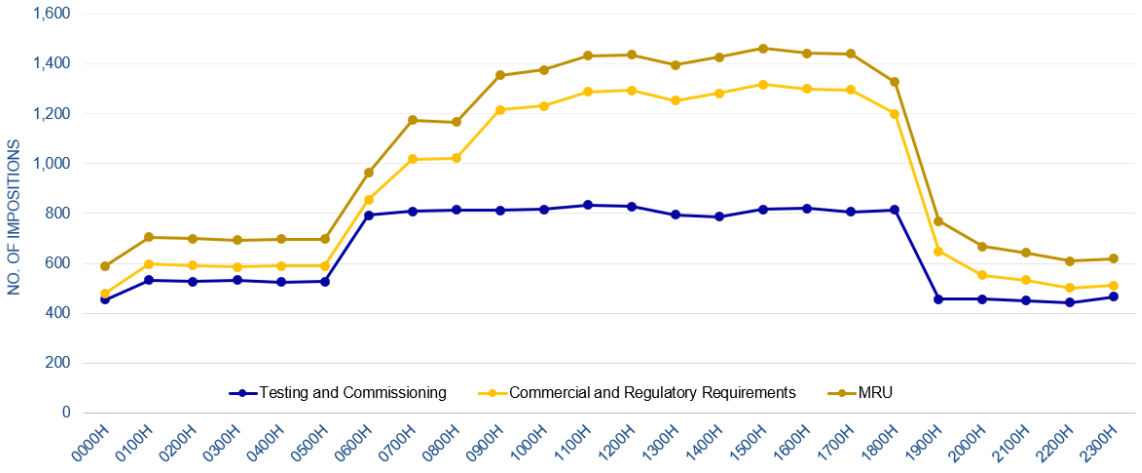
LUZON **93%** 23,101

Visayas **7%** 1,685

30,742 OC Impositions for April 2022

19.37% decrease from previous month

IMPOSITIONS



The May 2022 billing month recorded over-riding constraints impositions with a **19.37% decrease** involving **17 Luzon** and **12 Visayas generators** due to the **issuance of Provisional Authority to Operate (PAO)** to a biomass plant and **expiration of commissioning test** of several battery energy storage system (BESS) plants. The decrease can also be attributable to the decrease in over-riding impositions on **ancillary tests** of coal and hydro plants.

May 2022 also saw **3,033 impositions** for **must-run-unit (MRU)** to address the **real power balancing and frequency control** in the Luzon Grid

Note: *Under the Dispatch Protocol Manual Issue 16.0, impositions of over-riding constraints may be categorized into: 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, and 2) commercial and regulatory tests*

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

Similar to the previous month's pattern, majority of instances of over-riding constraints imposed over a 24-hour period were caused by the conduct of plants' commissioning test for an average of **67 percent of the time**, which is primarily attributed to the commissioning tests **during peak** and **off-peak hours** of **Coal** plants with a total capacity of **843 MW**. Commissioning test impositions also involve battery and solar power plants.

Commercial and regulatory requirements (for coal, hydro, and solar) were another major reason for the imposition of overriding constraints, which **increased during peak hours** as a result of ancillary tests of coal and hydro plants, and variable renewable energy (VRE) tests of solar plants. It can be noted that these impositions involved a total capacity of **1,335 MW during peak hours** and **1,248 MW during off-peak hours**. .<This edit/revision po is noted CGO, thank you very much po!>

For the month of May, **MRU impositions** were relatively consistent over a 24-hour period, with peak hours showing a slight increase where demand was likewise expected to increase.

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OCR-2022-05

IMPOSITIONS BY INCIDENTS

Commissioning Test — 64%

Majority of the non-security limit events documented for the May 2022 billing month were attributed to **commissioning test** – a **26.29% decrease** from the previous month's impositions due to the expiration of commissioning test periods on several plants and the commercial operation of a biomass plant.

Generating Unit Limitation — 0%

No **over-riding constraints** events related to Generating Unit limitation was noted.

Commercial and Regulatory Requirement — 24%

Attributed to the execution of various tests such as Ancillary test, Capacity test, Compliance test, Emission test, Performance test, and VRE test.

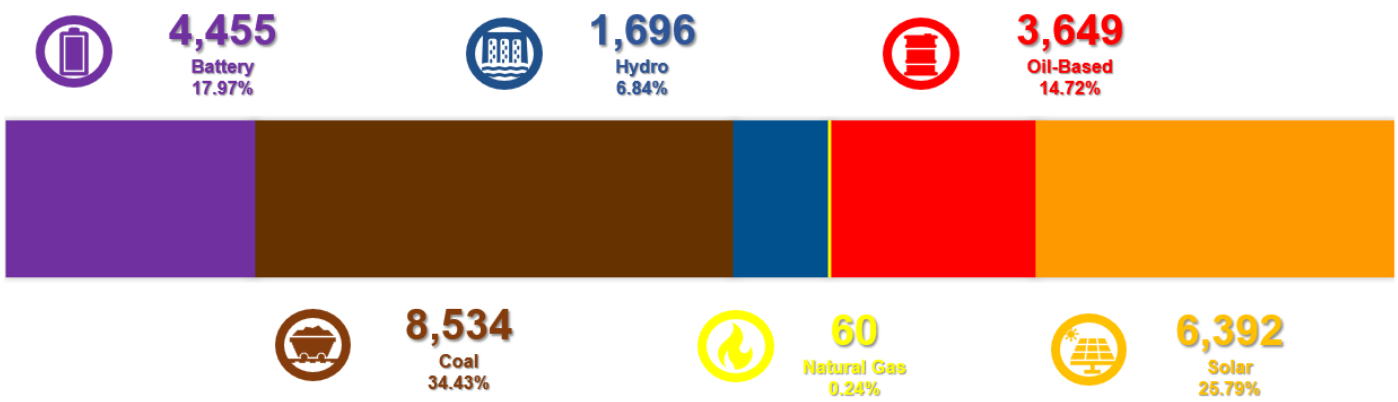
MRU — 12%

SO impositions were made to address **Real Power Balancing** and **Frequency Control** of the grid

IMPOSITIONS BY PLANT TYPE

The **start of a new commissioning test period, as well as the imposition of ancillary service tests, resulted in coal plants having the highest overall over-riding constraints impositions** for the month, followed by solar, battery, and oil-based plants due to VRE tests, commissioning tests, and MRU impositions. Hydro and natural gas plants only contributed to small over-riding constraints impositions

Expiration of commissioning test period of 3 BESS plants was also the reason of the shift to coal plant being the plant with highest over-riding constraints imposition. The **increase in over-riding constraints impositions for oil-based plants was due to MRU –** which accounted for 12% of total over-riding constraints impositions.



MONTHLY REPORT ON OVER-RIDING CONSTRAINTS

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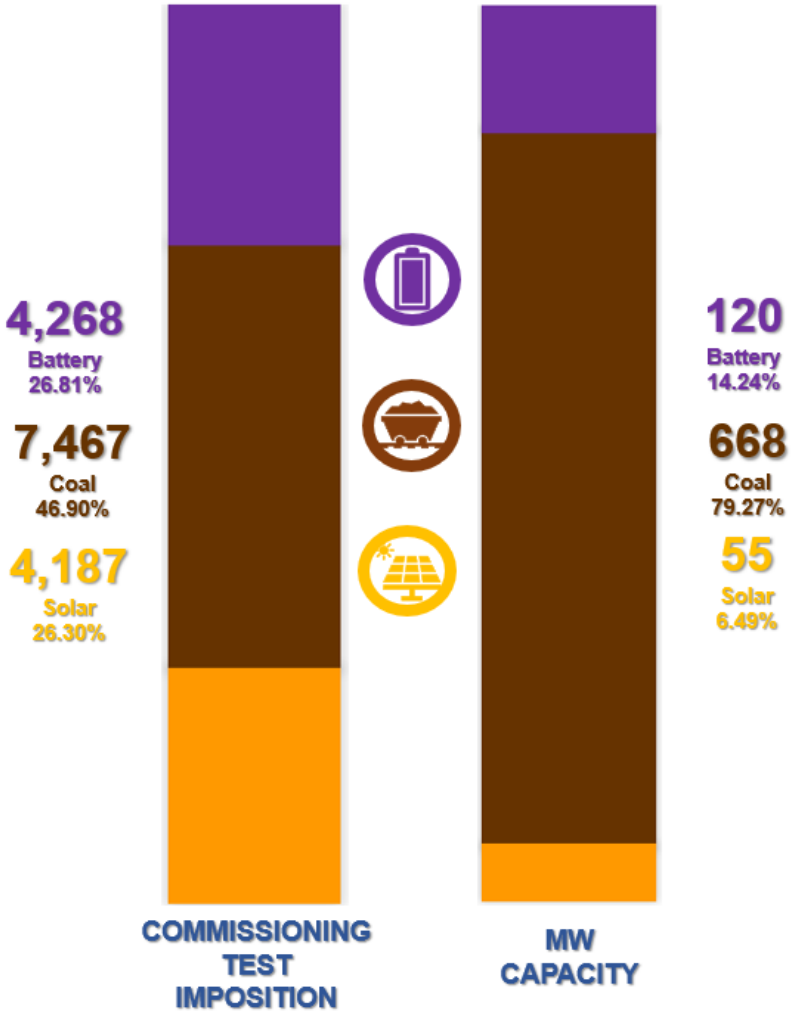
OCR-2022-05

PLANTS ON COMMISSIONING TEST



The May 2022 billing month saw a **decrease in impositions of over-riding constraints under commissioning test**, compared to the previous month, as most of the plants under prolonged commissioning test had **expired Provisional Certificate of Approval to Connect (PCATC)**, battery and biomass plants specifically, preventing them to be imposed with over-riding constraints. **843 MW of capacity was imposed with over-riding constraints** due to commissioning test.

This month, most of the plants on commissioning test were attributable to Coal, followed by battery and Solar.

Based on the updates provided by the Independent Electricity Market Operator of the Philippines (IEMOP), the following were some of the updates on the **status of power plants under extended commissioning test** during the May billing month:

- **1 solar plant** was given an extension on its PCATC to conduct commissioning test
- **3 BESS plants** had expired commissioning test period and were yet to be given respective extensions for PCATC

Furthermore, **one coal plant has just started its commissioning test** during the May 2022 billing month.

Note: The Department of Energy (DOE) department circular no. DC2021-06-0013 (Adopting a General Framework Governing the Test and Commissioning of Generation Facilities for Ensuring Readiness to Deliver Energy to the Grid or Distribution Network) provides a transitory provision that:

- *Allows generation companies that are already on commissioning test, upon effectivity of the circular (especially those plants on prolonged commissioning test), to continue to conduct commissioning test for a maximum of two (2) months after the effectivity date.*

This will be in consideration in the MSC's monitoring of plants on prolonged testing commissioning test (beyond the maximum two-month period allowed also under the ERC Resolution No. 16, Series of 2014).

MONTHLY REPORT ON OVER-RIDING CONSTRAINTS

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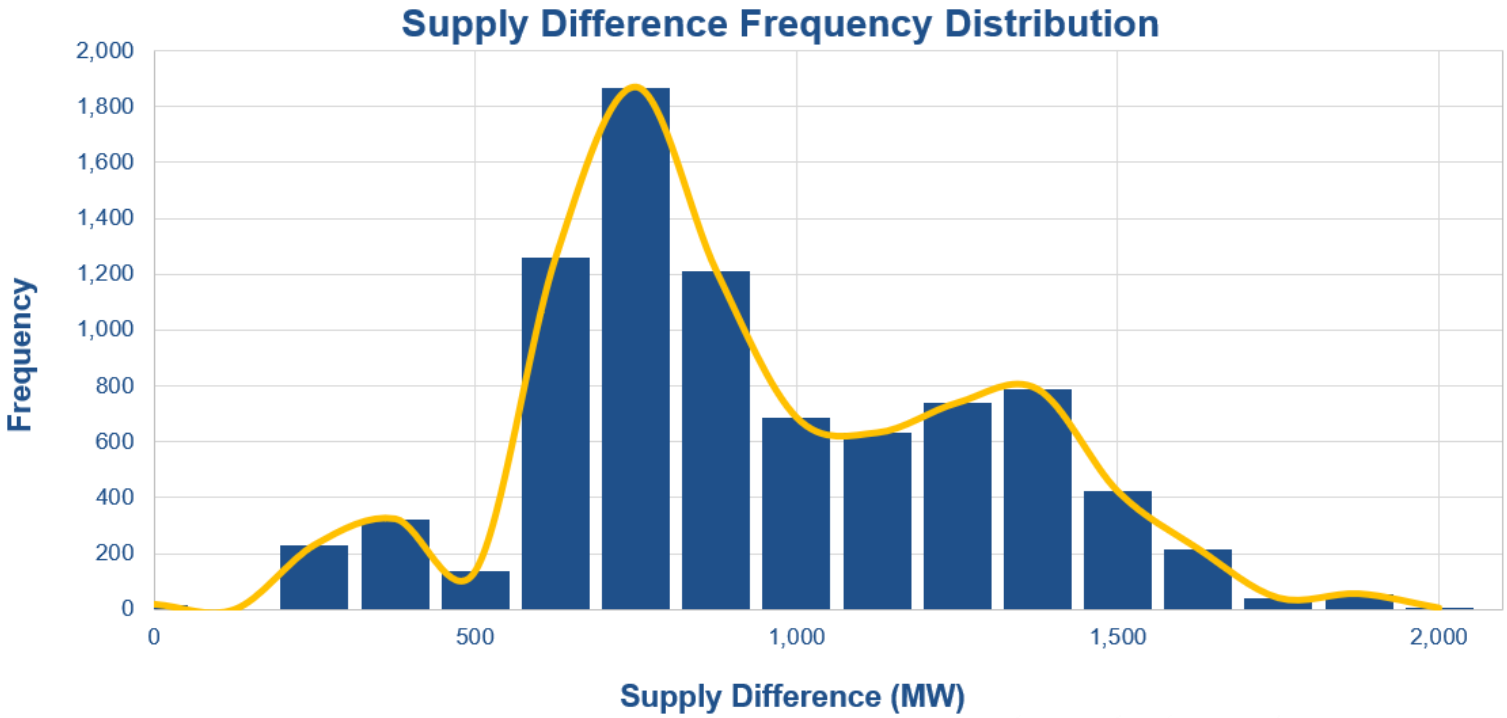
OCR-2022-05

MARKET PRICE ANALYSIS ON SUPPLY



The over-riding constraints imposed on generators throughout the May billing month accounted for an **average difference of 870 MW** in supply when compared to a market run without any over-riding constraints. Majority of the time, over-riding constraints impositions supplied **625 MW to 875 MW** capacity of price takers resulting in lower market clearing prices. However, it has been observed that this may have a price distorting effect by arbitrarily lowering the true cost of generation which may be detrimental to the market's ability to remain sustainable in the long run.

Similar to the previous month's trend, higher capacities under over-riding constraint impositions were dispatched **during peak hours** with an average market effect of **1,055 MW** and an average effect of **737 MW during off-peak hours**.

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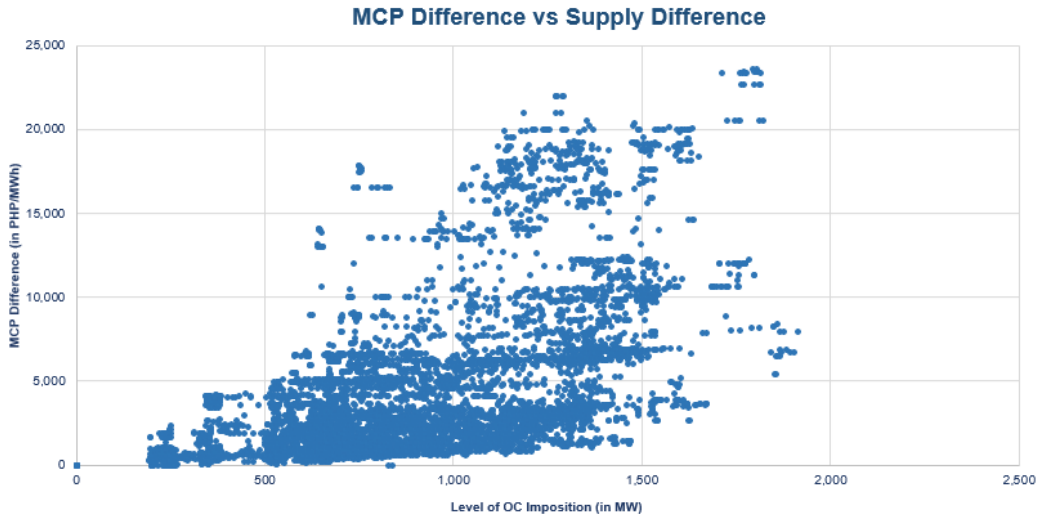
ON MARKET CLEARING PRICE



This graph depicts the level of over-riding constraints imposed in terms of MW and the corresponding resulting price difference based on simulations.

The supply difference generated via over-riding constraint impositions resulted in a **decrease in market prices on an average of PhP 3,978/MWh.**

The impact of over-riding constraints on market price in terms of its percentage distribution revealed that when over-riding constraints are imposed, the price difference is **less than PHP 5,597/MWh, 70% of the time**.