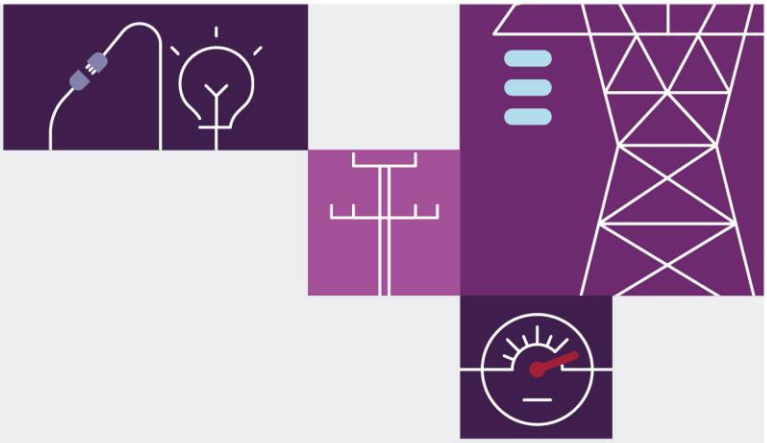
AEMO
AUSTRALIAN ENERGY MARKET OPERATOR

WEM Weekly Constraint Outcomes

Trading Week starting 29 December 2024

A summary of constraint outcomes using data available at 06 January 2025

A report for the Wholesale Electricity Market Congestion Information Resource



Important notice

Purpose

The purpose of this report is to assist Rule Participants and other interested stakeholders to understand the impact of Network Congestion during Trading Week starting 29 December 2024.

AEMO publishes this report under Wholesale Electricity Market Rules clause 2.27B.3(d). This publication is based on information available to AEMO as at 06 January 2025 unless otherwise indicated.

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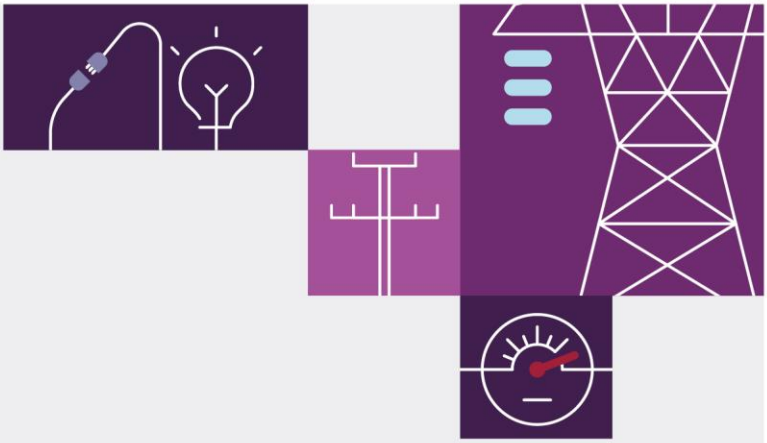

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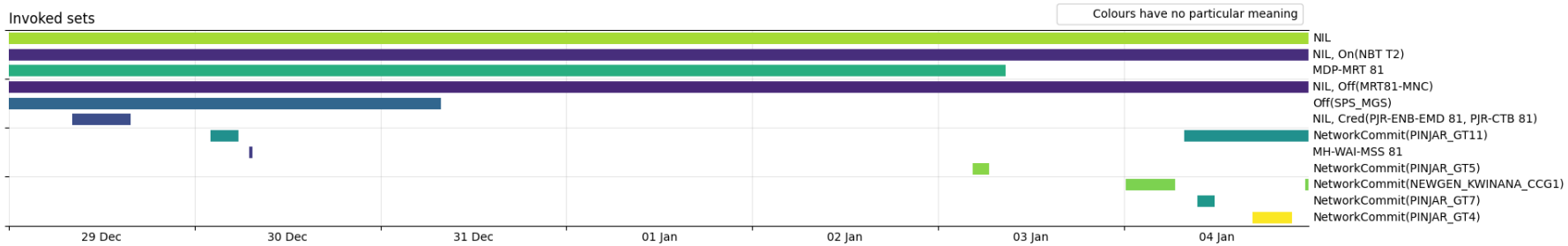
Invoked Constraint Sets

Figure 1 shows invoked Constraint Sets, ordered by date invoked. Sets created for discretionary Constraint Equations (see Figure 2) are excluded.

Figure 1 – Summary of invoked Constraint Sets.

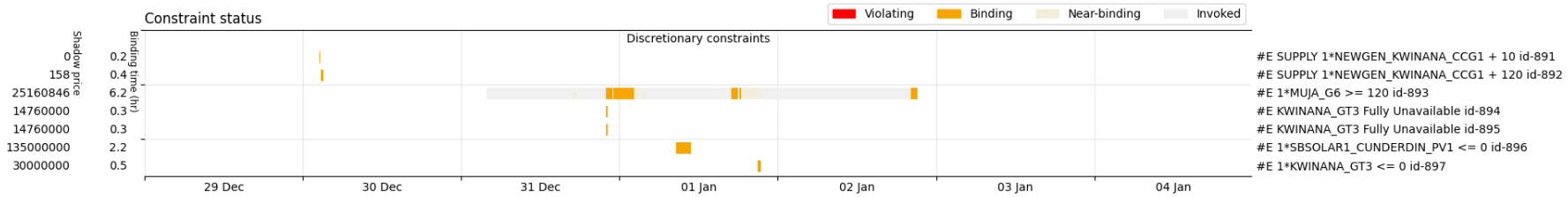


* Dates indicate Trading Days (starting 8am)

Discretionary Constraints

Figure 2 shows the status of discretionary Constraint Equations, ordered by creation date.

Figure 2 – Binding summary of discretionary Constraint Equations.

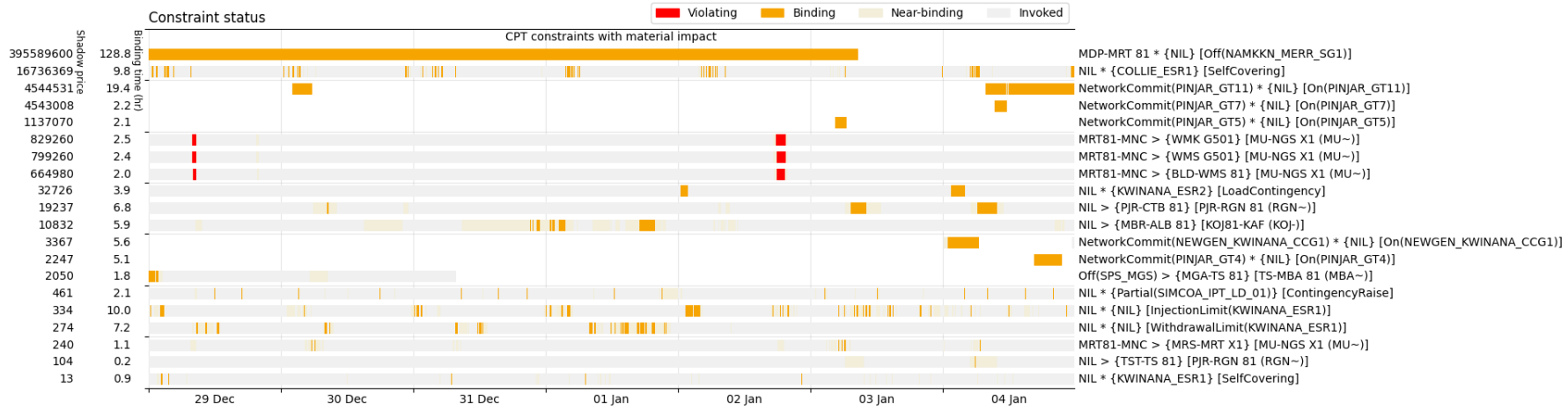


* Dates indicate Trading Days (starting 8am)

Binding Constraints

Figure 3 shows the status of invoked library Constraint Equations that could have had an impact on dispatch, i.e. each Constraint Equation here has bound or violated for at least one Trading Interval and has a non-zero Constraint Violation Penalty (CVP). Constraints are ordered by cumulative shadow price, which gives an indication of relative market impact. Defined Contingency Constraint Equations and discretionary Constraint Equations have been excluded.

Figure 3 – Binding summary of library constraints.

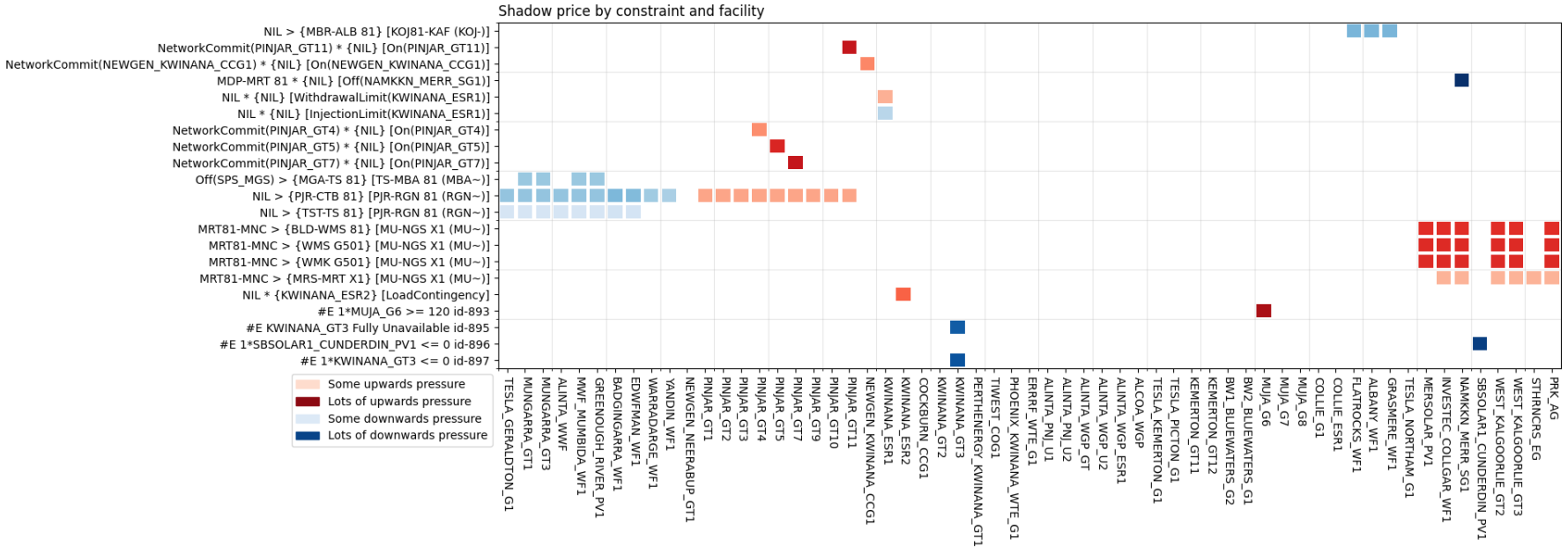


* Dates indicate Trading Days (starting 8am)

Constraint Impact

Figure 4 shows the extent to which a Facility's energy setpoint was influenced by a Constraint, based on the Constraint Equation's total shadow price over the Trading Week and the Facility's coefficient in the Constraint Equation. Only constraints with an influence on energy setpoints have been included, and only Scheduled Facilities and Semi-Scheduled Facilities have been included. Facilities have been roughly ordered by region.

Figure 4 – Summary of shadow price by constraint and by Facility.



About the data

The data used to create the figures in this report is solely sourced from the case files and solutions from the WEM Dispatch v1 API. The same case and solutions files can be downloaded from the WEM Market Data website.

More information about the Constraints Library can be found using the Operational Constraint Library PowerBI report, including descriptions of what each Constraint Equation does, which Constraint Equations are in which Constraint Sets, and version histories of each Constraint Equation and Constraint Set.

For queries related to information published in this report please contact the WEM Congestion team (System Engineering) via wem.constraints@aemo.com.au.

Glossary

The following definitions apply in this report unless the context requires otherwise.

Table 1 Definitions

Term	Definition
Constraint Equation	As per the definition in the WEM Rules.
Constraint Set	As per the definition in the WEM Rules. Constraint Sets can be invoked and revoked, whereas individual Constraint Equations cannot be.
Defined Contingency Constraint Equation	A specific type of Constraint Equation used to calculate the size of the Largest Credible Supply Contingency. All Constraint Equations with a “constraintType” field of either “Network Risk” or “Facility Risk” are Defined Contingencies.
Discretionary Constraint Equation	A discretionary Constraint Equation is a constraint created in WEMDE UI for real-time operations, these do not form part of the Constraint Library. All Constraint Equations with an ID starting with “#” are discretionary.
Library constraint	A constraint from the Constraint Library. This excludes discretionary Constraint Equations. The Constraint Library is published on the Congestion Information Resource.
Near Binding Constraint Equation	As per the definition in the WEM Rules.
Shadow price	Shadow price is a mathematical concept related to linear solvers. It represents the change in the objective function (total system cost plus violating penalties) if the constraint RHS is increased by 1 MW. It has been used here a rough proxy for the relative market impact of a constraint.