

NEW ZEALAND GENERATION BALANCE

MAY REPORT

EXECUTIVE SUMMARY

This month's New Zealand Generation Balance Report forecasts no N-1-G generation shortfalls for the next six months. Applying low gas, no wind assumptions, N-1-G shortfalls are forecast for three days in August. Generation balances have generally improved since the April Report, with a reduction in the number of forecast shortfall dates.

The Grid Owner published its Annual Outage Plan (AOP) for 2021-22 on 03 May 2021. NZGB now reflects the published AOP.

The system operator has adjusted NZGB so that it uses 2019 load data for all forecasts in the 2021 calendar year (instead of 2020 load data). This is to remove the impact of COVID-19 from the load profile. Several changes were made to the NZGB model in March. These are listed at the end of this Report.

The May NZGB report has been based on data taken from POCP on 03 May 2021.

1

WHAT IS NZGB?

NZGB is a tool operated by the System Operator to predict, up to six months in advance, whether New Zealand will have enough generation capacity to meet its daily peaks. The tool provides Asset Owners guidance for their outage scheduling.

There are two generation balance figures given: N-1 and N-1-G. The N-1 balance is the system's capacity to cover, over the peak, the loss of the largest risk-setter (a large generator or a HVDC pole). Likewise, the N-1-G balance is the system's capacity to cover, over the peak, the loss of the largest risk-setter if the next largest risk setter were also to become unavailable.

The analysis considers two different scenarios; a 'base scenario' where load is determined based upon load from the same period last year and a 'winter scenario', where the highest recorded winter loads from the last three years are applied across all winter months. Under each scenario, three different generation assumptions are made; a base assumption of generator outages as per POCP; a low gas assumption where North Island gas generation is decreased (a 542MW reduction in capacity); but the standard assumptions about wind are applied; and a low gas assumption where all wind generation is assumed to be at zero output.

The System Operator will issue a CAN highlighting potential shortfalls for instances where the base scenario with base load assumptions indicates an N-1-G shortfall.

For more information, please refer to the [website](#) or the [user guide](#).

BASE SCENARIO RESULTS

There are no N-1 generation balance shortfalls forecast for the base scenario irrespective of generation assumptions (Figure 1). There are no forecast N-1-G generation shortfalls for the base assumption, but N-1-G shortfalls are forecasted for the low gas, no wind assumption for three days in August (Figure 2).

The reduction in forecast shortfalls is primarily due to changes to transmission outages made by the grid owner. This includes cancelling of MTI-WKM-1 and 2 outages (July) and the shifting of the THI-WKM-1 outage (September). The forecast shortfalls in August have marginally worsened due to additional grid owner outages in and around CYD.

There are three significant grid owner outages during the six-month period this report covers;

1. HVDC Pole 3 Cable 6 Works (10 – 14 May 2021)



2. [CUWLP NSY ROX 1 Duplexing Works](#) (12 January 2021 – 18 June 2021)
3. [CUWLP NSY ROX 1 Duplexing Works](#) (4 October 2021 – 25 November 2021)

There are no generation shortfalls (under any scenarios) forecast during any of these outages (except for the shortfalls discussed above). The system operator will continue to monitor NZGB during the period of these outages and will highlight any shortfalls. These outages have a negligible impact on NZGB.

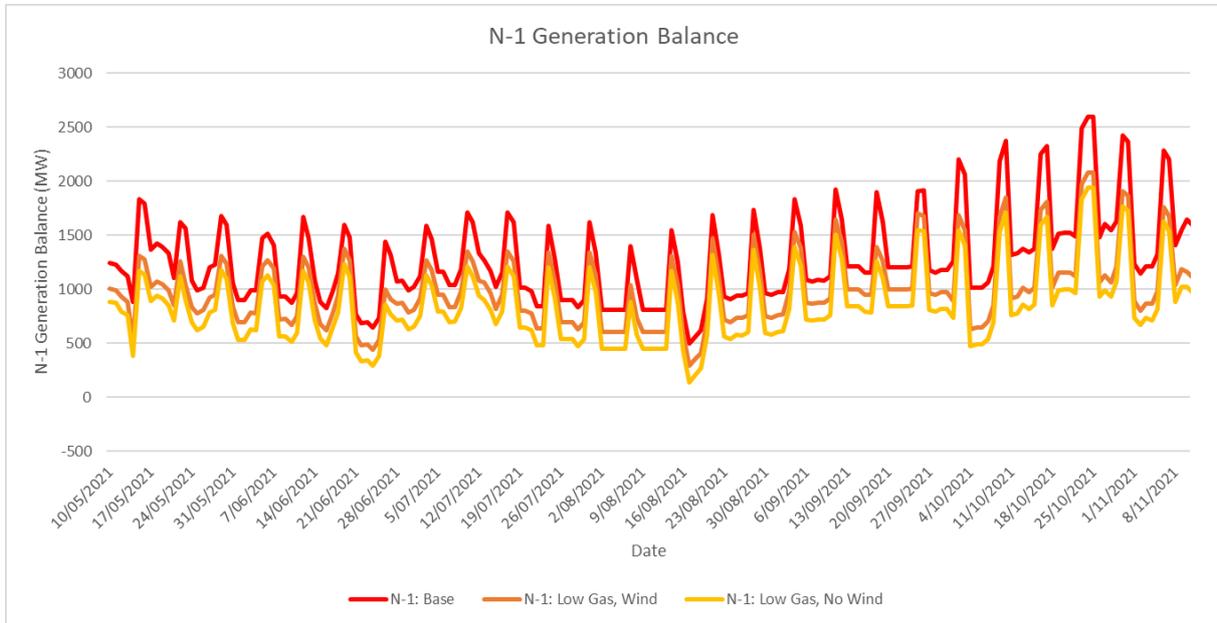


Figure 1: NZGB N-1 Balance – Base Scenario

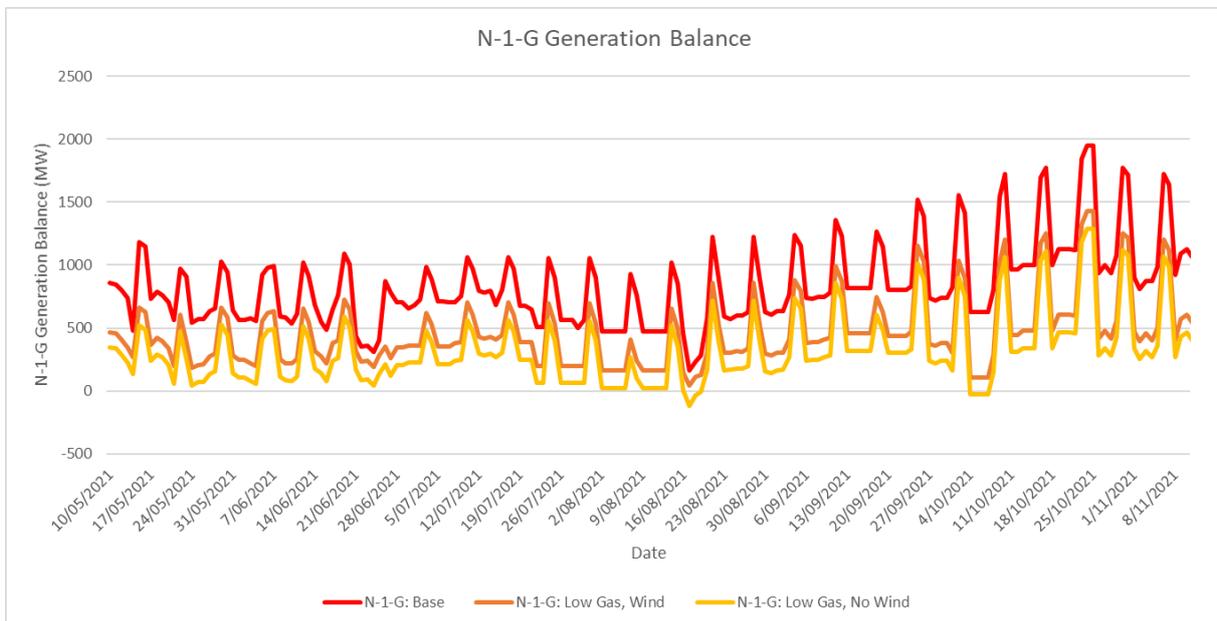


Figure 2: NZGB N-1-G Balance – Base Scenario

Further details of the predicted shortfalls are details below in Table 1.



Table 1: Forecast base scenario shortfalls for the next six months

	Base Scenario		Low Gas, Wind Scenario		Low Gas, No Wind Scenario		Outages				
	N-1 Margin	N-1-G Margin	N-1 Margin	N-1-G Margin	N-1 Margin	N-1-G Margin	Generation		Transmission		HVDC
							NI	SI	NI	SI	
Tue, 17/08/2021	498	160	291	41	134	-116	100	800	0	0	0
Wed, 18/08/2021	568	230	361	111	216	-34	100	500	0	250	0
Thu, 19/08/2021	619	281	412	131	266	-7	100	450	0	250	0

To mitigate the risk of a shortfall on the dates with low or negative generation balance forecast, market participants should:

1. avoid scheduling additional outages which may remove or constrain generation; and
2. adjust demand and generation offers to minimise any risk of shortfall.

WINTER SCENARIO RESULTS

Due to a data processing error, there are no results for the Winter, Low Gas, No Wind scenario this month.

N-1-G generation shortfalls for the base assumption are forecast between 21 and 25 June. These shortfalls are coincident with the grid owner’s CYD-CML-TWZ-2 transmission outage. N-1-G shortfalls are forecast from the low gas assumption throughout all winter months (June – August) (Figure 4). This is a longer period of forecast shortfalls than the base case and the magnitude of the shortfall is larger. Prior to June and beyond August the winter and base scenario loads are identical.

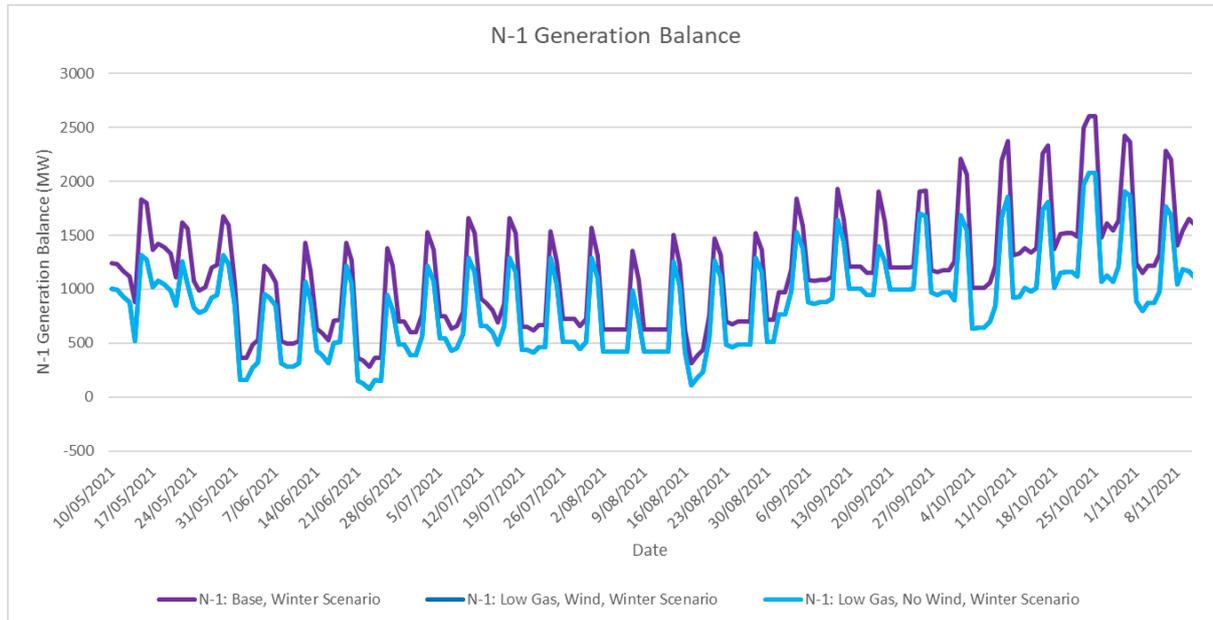


Figure 3: NZGB N-1 Balance – Winter Scenario



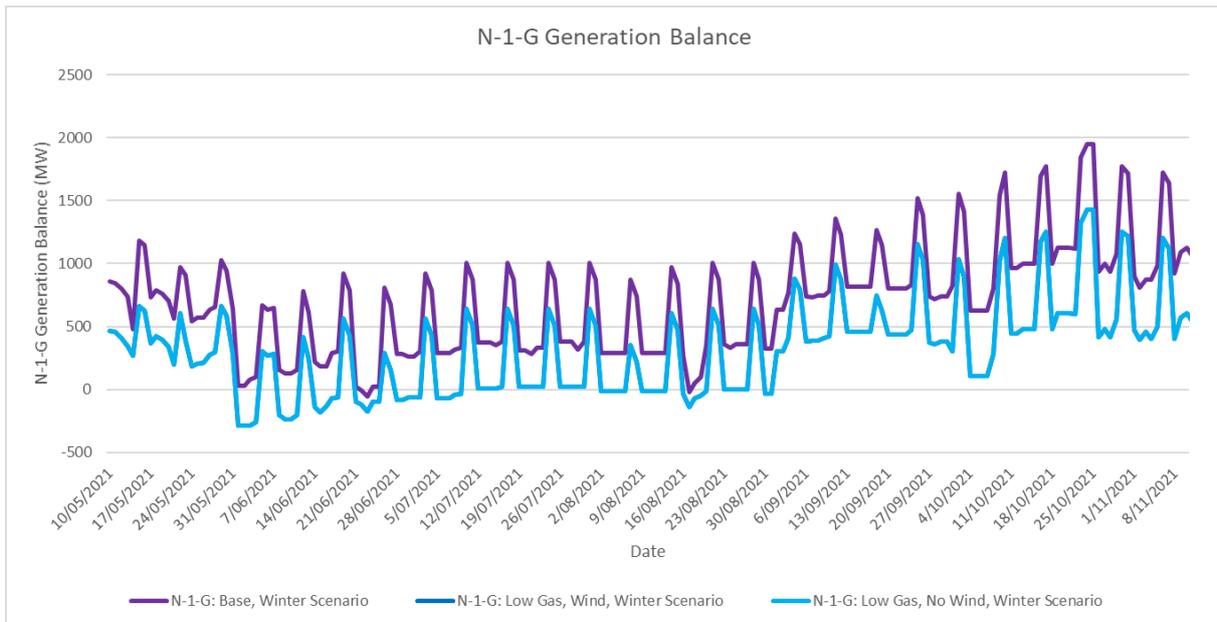


Figure 4: NZGB N-1-G Balance – Winter Scenario

CHANGES SINCE THE APRIL 2021 REPORT

There has been one change to the NZGB model since the April 2021 Report.

1. Changes have been made to HVDC related calculations to account for single cable outages on Pole 3.

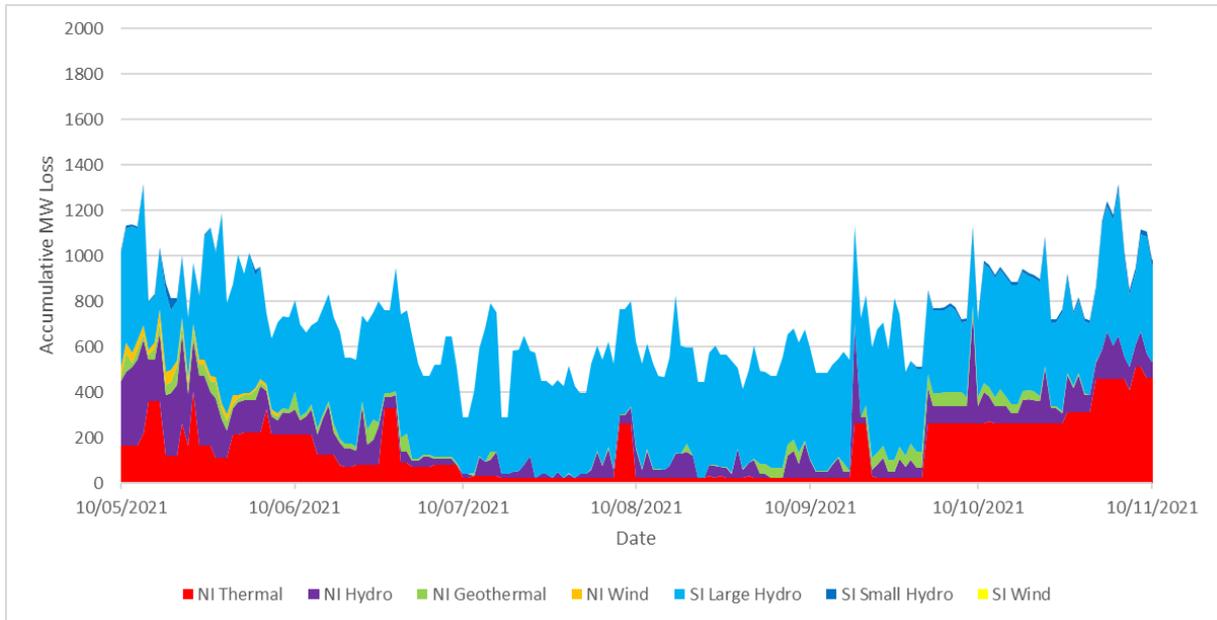
The system operator is aware of upcoming generator commissionings and will be working with the relevant asset owners to ensure these are correctly included in NZGB.

To provide feedback on the changes to either the NZGB modelling or monthly report, please contact Christian Jensen (christian.jensen@transpower.co.nz). For more details on the NZGB modelling, please refer to the [User Guide](#).



NOTABLE GENERATOR OUTAGES

The accumulative MW loss of generator outages that impact the generation balance for the period studied are shown in Figure 5. Note that this does not capture the impact of transmission outages. For more information please visit [POCP](#).



5

Figure 5: Accumulative generation outages.

