

New Zealand Generation Balance – December 2018

Executive Summary

The New Zealand Generation Balance (NZGB) assessment for the next 6 months has indicated additional anticipated shortfalls (N-1-G) for several days in June, which are mainly caused by the higher load scenario applied across the month. Under the sensitivity scenario of a major slow starting North Island unit not being offered further shortfalls (N-1 and N-1-G) can be expected from April to June 2019, as shown in Table 2.

The assessment is based on data available as of 06/12/2018. In comparison to the November report there have been several changes to the North Island generation outages:

- The end date for TCC station outage has been extended from 25/11/18 to 21/12/18
- The Huntly unit 2 outage is now from 29/09/18 - 31/01/19 and recommencing 01/04/19 - 31/12/22
- The Huntly unit 1 outage now has an end date of 01/04/19 from 16/04/19.

The majority of the changes in the generation balance are due to the periods listed in Table 1.

Table 1: Significant changes with approximate MW changes.

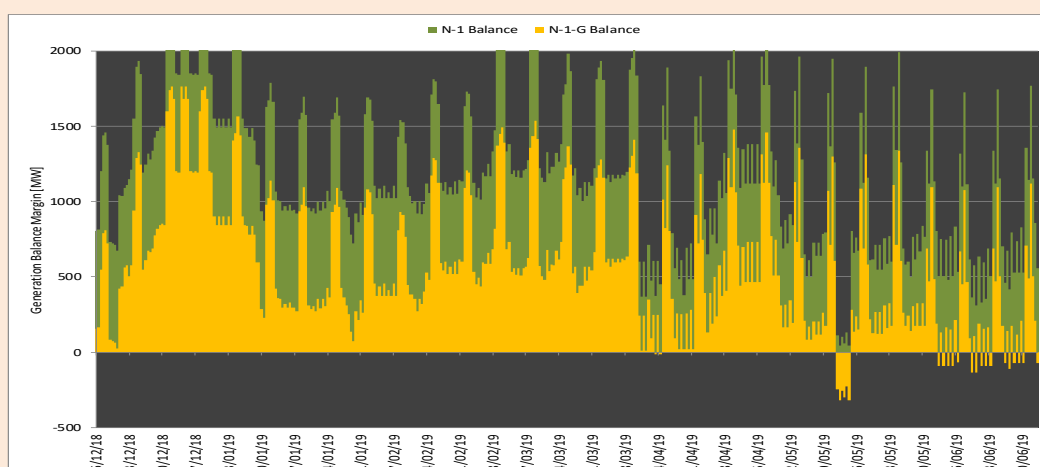
Timeframe with significant changes:	Average MW value:
06/12/18 - 08/12/18	Loss of 439MW
09/12/18 - 15/12/18	Loss of 178MW
16/12/18 - 21/12/18	Gain of 394MW
01/02/19 - 16/04/19	Gain of 184MW

The HVDC Pole 2 outage originally scheduled for 25/05/19 has been cancelled. Significant transmission outages include THI_WKM_1 and CYD_CML_TWZ_1 which are both scheduled for 13/05/19 – 15/05/19 causing a combined loss of approximately 635 MW in the generation balance.

To mitigate the risk of a shortfall on dates where a tight generation balance margin is forecasted market participants should:

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

Figure 1 shows generation balance margins from the *long-term* studies. To minimise the risk of a shortfall it is recommended this information be used for scheduling outages which remove or constrain generation.





Low generation balance margins for the period studied

Low generation balance margins are anticipated on several days over the *long-term* forecast period with several shortfalls (N-1-G) forecasted from April to June 2019. Additionally, under the sensitivity scenario of a major slow starting North Island generating unit not being offered further generation balance shortfalls could be encountered on several more dates. A summary of the study results for these periods, as well as a summary of the outages causing the low generation balance margins are detailed in Table 2 and Figure 2.

Table 2: Result of the long-term generation balance studies.

	Base Scenario		Worst Case Sensitivity Scenario		Equipment Outage Impact				
	N-1 Margin	N-1-G Margin	N-1 Margin	N-1-G Margin	Generation		Transmission		HVDC
					NI	SI	NI	SI	
Thu 06/12/18	700	50	450	-200	1450	350	0	0	100
Fri 07/12/18	805	155	555	-95	1350	250	100	0	0
Mon 10/12/18	722	72	472	-178	1400	250	0	0	100
Tue 11/12/18	675	25	425	-225	1450	400	0	0	100
Tue 12/02/19	990	353	630	-7	950	550	0	0	50
Wed 13/02/19	921	271	561	-89	1100	450	0	0	50
Thu 14/02/19	915	322	555	-38	1000	500	0	0	150
Mon 01/04/19	368	8	8	-273	750	550	0	0	0
Tue 02/04/19	368	8	8	-273	750	550	0	0	0
Wed 03/04/19	477	90	117	-270	750	450	0	0	0
Thu 04/04/19	373	-14	13	-374	850	450	0	0	0
Fri 05/04/19	453	-14	93	-374	850	450	0	0	0
Mon 08/04/19	557	90	197	-270	750	400	0	0	0
Tue 09/04/19	487	20	127	-340	850	400	0	0	0
Wed 10/04/19	379	19	19	-340	800	500	0	0	0
Thu 11/04/19	487	20	127	-340	850	400	0	0	0
Fri 12/04/19	487	20	127	-340	800	400	0	0	0
Mon 15/04/19	649	129	289	-231	700	350	0	0	0
Tue 16/04/19	780	189	420	-171	700	250	0	0	0
Wed 17/04/19	720	238	360	-122	600	350	0	0	0
Wed 01/05/19	686	164	326	-196	350	300	0	0	0
Thu 02/05/19	722	167	362	-193	350	250	0	0	0
Fri 03/05/19	845	195	485	-165	300	250	0	0	0
Mon 06/05/19	502	82	142	-278	450	400	0	0	0
Tue 07/05/19	502	82	142	-278	450	400	0	0	0
Wed 08/05/19	640	115	280	-245	450	300	0	0	0
Thu 09/05/19	640	115	280	-245	450	300	0	0	0
Fri 10/05/19	786	175	426	-185	400	300	0	0	0
Mon 13/05/19	43	-317	-317	-567	450	300	300	350	0
Tue 14/05/19	58	-302	-302	-552	450	300	300	350	0
Wed 15/05/19	43	-317	-317	-567	400	300	300	350	0
Thu 16/05/19	660	135	300	-225	350	300	0	0	0
Fri 17/05/19	675	150	315	-210	400	300	0	0	0
Mon 20/05/19	610	125	250	-235	400	450	0	0	0
Tue 21/05/19	546	119	186	-241	350	400	0	0	0
Wed 22/05/19	546	119	186	-241	350	400	0	0	0
Thu 23/05/19	588	161	228	-199	350	400	0	0	0
Fri 24/05/19	602	175	242	-185	300	400	0	0	0
Mon 27/05/19	580	175	220	-185	400	400	0	0	0
Tue 28/05/19	501	141	141	-185	400	500	0	0	0
Wed 29/05/19	615	175	255	-185	350	400	0	0	0
Thu 30/05/19	670	175	310	-185	300	400	0	0	0
Fri 31/05/19	766	175	406	-185	300	300	0	0	0
Mon 03/06/19	505	-92	145	-452	300	200	0	0	0
Tue 04/06/19	505	-92	145	-452	350	200	0	0	0
Wed 05/06/19	482	-92	122	-452	300	250	0	0	0



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	Base Scenario		Worst Case Sensitivity Scenario		Equipment Outage Impact				
	N-1 Margin	N-1-G Margin	N-1 Margin	N-1-G Margin	Generation		Transmission		HVDC
					NI	SI	NI	SI	
Thu 06/06/19	505	-92	145	-452	300	200	0	0	0
Fri 07/06/19	531	-66	171	-426	250	200	0	0	0
Mon 10/06/19	364	-137	4	-497	400	300	0	0	0
Tue 11/06/19	311	-137	-49	-497	350	400	0	0	0
Wed 12/06/19	331	-92	-29	-452	300	400	0	0	0
Thu 13/06/19	356	-92	-4	-452	300	400	0	0	0
Fri 14/06/19	505	-92	145	-452	300	300	0	0	0
Mon 17/06/19	458	-71	98	-431	300	300	0	0	0
Tue 18/06/19	419	-110	59	-470	350	300	0	0	0
Wed 19/06/19	526	-71	166	-431	300	200	0	0	0
Thu 20/06/19	526	-71	166	-431	350	200	0	0	0
Fri 21/06/19	526	-71	166	-431	250	200	0	0	0
Mon 24/06/19	556	-71	196	-431	250	150	0	0	0

To mitigate the risk of a shortfall on the dates of a 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.

Changes since the November 2018 report

The major changes between this and the previous month's report are:

1. Several changes to the generation balance margins in December caused by churn in NI generation outages.
2. Larger generation balance impact on the concurrent transmission outages in May 2019.
3. Report now includes June 2019 where shortfalls (N-1-G) are anticipated under the base scenario.

Notable outages

Notable outages of generation and transmission equipment that impact the generation balance for the period studied are shown in Figure 2.

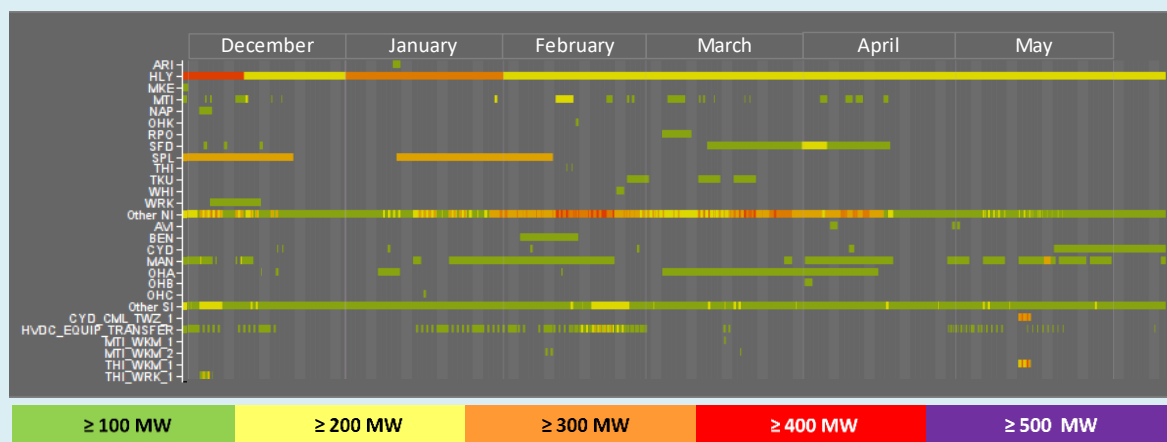


Figure 2: Significant generation and transmission equipment outages.

