New Zealand Generation Balance – October 2018

Executive Summary

The New Zealand Generation Balance (NZGB) assessment for October, covering the next 6 months, indicates three potential shortfalls (N-1-G) for 08/04/19 - 10/04/19 and periods of low generation margins (N-1-G) for most months. Under the sensitivity scenario conditions of a major, slow starting North Island generating unit not being offered, further shortfalls could be encountered on several days (Please refer to table1 for specific dates).

Using the data available as of 01/10/2018, the generation balance is expected to decrease at the start of April due to higher predicted load. However, the margin is to improve from mid- April, as both North and South Island generation outages decrease. Compared to the September NZGB report, the generation balance has generally remained similar except under these timeframes:

<u>01/10/18 - 27/11/18</u> - Decrease of 105MW on average due to changes in both NI and SI generation outages <u>11/01/19 - 25/01/19</u> - Decrease of 350MW on average caused by an increase in NI generation outages <u>11/02/19 - 18/02/19</u> - Increase of 249MW on average due to changes mainly in NI generation outages

The assessment includes the significant outages of:

- HVDC pole and bipole planned for 22/11/18 27/11/18
- Generation outage of Huntly unit 5 scheduled for 26/10/18 11/12/18

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.



Figure 1: Generation balance study results for the period studied



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Low generation balance margins for the period studied

Low generation balance margins are anticipated on several days over the studied period, with some shortfalls (N-1-G) forecasted in April 2019. Additionally, under sensitivity scenario conditions of a major, slow starting North Island generating unit not being offered, further generation balance shortfalls could be encountered on several dates.

A summary of the study results for these dates, as well as a summary of outages causing the low generation balance margins, are detailed in Table 1.

	Base Scenario		Worst Case Sensitivity Scenario		Equipment Outage Impact					
	Margin	Margin	Margin	Margin	NI	si	NI	SI	- HVDC	
Wed 10/10/18	753	163	393	-197	950	350	0	0	0	
Thu 11/10/18	662	125	302	-235	1000	450	0	0	50	
Fri 26/10/18	913	263	553	-97	1000	450	0	0	50	
Sun 28/10/18	991	341	631	-19	1000	400	50	0	50	
Mon 29/10/18	646	73	363	-287	1050	450	0	0	50	
Tue 30/10/18	701	128	418	-232	1000	450	0	0	50	
Wed 31/10/18	673	93	383	-267	1000	450	0	0	50	
Thu 01/11/18	697	204	447	-156	1150	450	0	0	50	
Fri 02/11/18	966	343	633	-17	1050	300	0	0	50	
Mon 05/11/18	823	177	467	-183	1200	250	50	0	100	
Tue 06/11/18	808	177	467	-183	1200	300	50	0	100	
Wed 07/11/18	826	179	469	-181	1200	350	50	0	100	
Thu 08/11/18	782	198	488	-162	1200	350	50	0	100	
Fri 09/11/18	796	212	502	-148	1150	350	50	0	150	
Mon 12/11/18	823	239	529	-121	1000	350	150	0	50	
Tue 13/11/18	805	221	511	-139	1000	350	150	0	50	
Wed 14/11/18	886	303	593	-57	950	350	200	0	50	
Thu 15/11/18	868	303	593	-57	1050	400	150	0	50	
Thu 22/11/18	363	3	3	-247	1000	300	0	0	500	
Fri 23/11/18	419	59	59	-191	950	300	0	0	500	
Mon 26/11/18	393	33	33	-217	1000	350	0	0	700	
Tue 27/11/18	420	60	60	-190	950	350	0	0	700	
Wed 28/11/18	915	335	625	-25	1050	350	0	0	50	
Thu 29/11/18	915	335	625	-25	1050	350	0	0	50	
Fri 30/11/18	915	335	625	-25	1050	350	0	0	50	
Mon 03/12/18	964	314	604	-46	1200	200	0	0	100	
Tue 04/12/18	972	322	612	-38	1150	200	0	0	100	
Wed 05/12/18	838	188	478	-172	1200	200	250	0	100	
Mon 11/02/19	939	289	579	-71	850	500	150	0	50	
Tue 12/02/19	842	257	482	-103	850	650	150	0	50	
Wed 13/02/19	747	175	387	-185	1000	550	150	0	50	
Thu 14/02/19	691	149	331	-211	1200	650	0	0	50	
Fri 15/02/19	913	303	553	-57	1000	550	0	0	50	
Mon 18/02/19	917	338	557	-22	1000	400	0	0	150	
Tue 19/02/19	938	359	578	-1	900	300	0	0	150	
Wed 20/02/19	919	359	559	-1	950	300	100	0	150	

Table 1: Result of the long-term generation balance studies.



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	Base Scenario		Worst Case Sensitivity Scenario		Equipment Outage Impact					
	N-1	N-1-G	N-1	N-1-G Margin	Generation		Transmission		HVDC	
	Margin	Margin	Margin		NI	SI	NI	SI		
Thu 21/02/19	902	342	542	-18	900	300	100	0	150	
Mon 25/02/19	903	253	543	-107	1000	200	150	0	50	
Mon 11/03/19	949	299	589	-61	1050	150	50	0	50	
Tue 12/03/19	901	251	541	-109	950	150	150	0	50	
Tue 19/03/19	970	320	610	-40	950	100	150	0	50	
Mon 01/04/19	489	35	129	-325	800	300	50	100	0	
Tue 02/04/19	489	35	129	-325	800	300	50	100	0	
Wed 03/04/19	576	38	216	-322	800	300	50	0	0	
Thu 04/04/19	576	38	216	-322	800	300	50	0	0	
Fri 05/04/19	576	38	216	-322	800	300	50	0	0	
Mon 08/04/19	494	-44	134	-404	900	300	50	0	0	
Tue 09/04/19	494	-44	134	-404	900	300	50	0	0	
Wed 10/04/19	494	-44	134	-404	900	300	50	0	0	
Thu 11/04/19	594	56	234	-304	800	300	50	0	0	
Fri 12/04/19	594	56	234	-304	800	300	50	0	0	
Mon 15/04/19	760	169	400	-191	700	250	50	0	0	
Tue 16/04/19	820	229	460	-131	650	250	50	0	0	

To mitigate the risk of a shortfall, on dates where tight generation balance margins are forecasted, 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 September 2018 report

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

- 1. There are several periods with noticeable changes in the generation balance margin:
 - <u>01/10/18 27/11/18</u> Decrease of 105MW on average due to changes in both NI and SI generation outages
 - <u>11/01/19 25/01/19</u> Decrease of 350MW on average caused by an increase in NI generation outages
 - <u>11/02/19 18/02/19</u> Increase of 249MW on average due to changes mainly in NI generation outages
- 2. April 2019 is now within the study window, where the generation margin is anticipated to be tight and slowly increase throughout the month.
- 3. Generation Balance shortfalls (N-1-G) can be anticipated from 08/04/19 10/04/19.



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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.



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