Security and Reliability Council

The National Winter Group's report on winter 2016

7 March 2016

Note: This paper has been prepared for the purpose of the Security and Reliability Council (SRC). Content should not be interpreted as representing the views or policy of the Electricity Authority.

Background

The Security and Reliability Council's (SRC) functions include offering advice to the Electricity Authority on the security of the power system.

The National Winter Group (NWG) is a group of industry participants that is established to determine possible power system issues during the winter season. The NWG has reported on the ability of the power system to meet peak demand for every winter since 2008. It began in response to concerns about security of supply during winter 2008.

The intent of the NWG is to:

- develop an agreed industry participant view of likely demand and generation to provide a common view on issues and risks for the winter season
- identify appropriate measures that could be implemented to mitigate risks.

The system operator is the convener of the NWG.

The National Winter Group's report on winter 2016 is materially complete

The NWG report on winter 2016 shows that the power system is expected to be able to meet the 95th percentile of peak demand using the 10th percentile of generation availability while remaining in a 'normal secure state'.

This is the same conclusion as in last year's NWG report, with a slight increase in the North Island capacity margin. A reduction in the demand forecast has been complemented by there being a limited number of scheduled generation outages and the 'worst' weeks for generation outages in the North and South Islands not coinciding.

The reporting is based on very recent data, with the system operator incorporating any changes to generation outages loaded into the Planned Outage Coordination Process (POCP) software as late as 3 March 2016. Accordingly, the reporting has the latest data, but the reporting format has not yet been converted to the long-form, detailed report that SRC members have received in previous years.

The starting assumptions have been determined by the NWG to be "prudent". As such, the results indicate that the power system is expected to maintain normal security in a rare/conservative scenario. The result can inform only about power system capability, not about whether it is a 'good' or 'bad' result for electricity consumers.

A key benefit of the NWG reporting is that it initiates discussion and action with respect to the scheduling of generation outages.

The SRC may wish to consider the following questions.

Q1.	Does the result of the National Winter Group draft report give the SRC confidence in the suitability of power system capabilities for winter 2016?
Q2.	What further information, if any, does the SRC wish to have provided to it by the secretariat?
Q3.	What advice, if any, does the SRC wish to provide to the Authority?

National Winter Group 2016

‘Final’ Update

March 2016

SYSTEM OPERATOR

‘Final’ Update

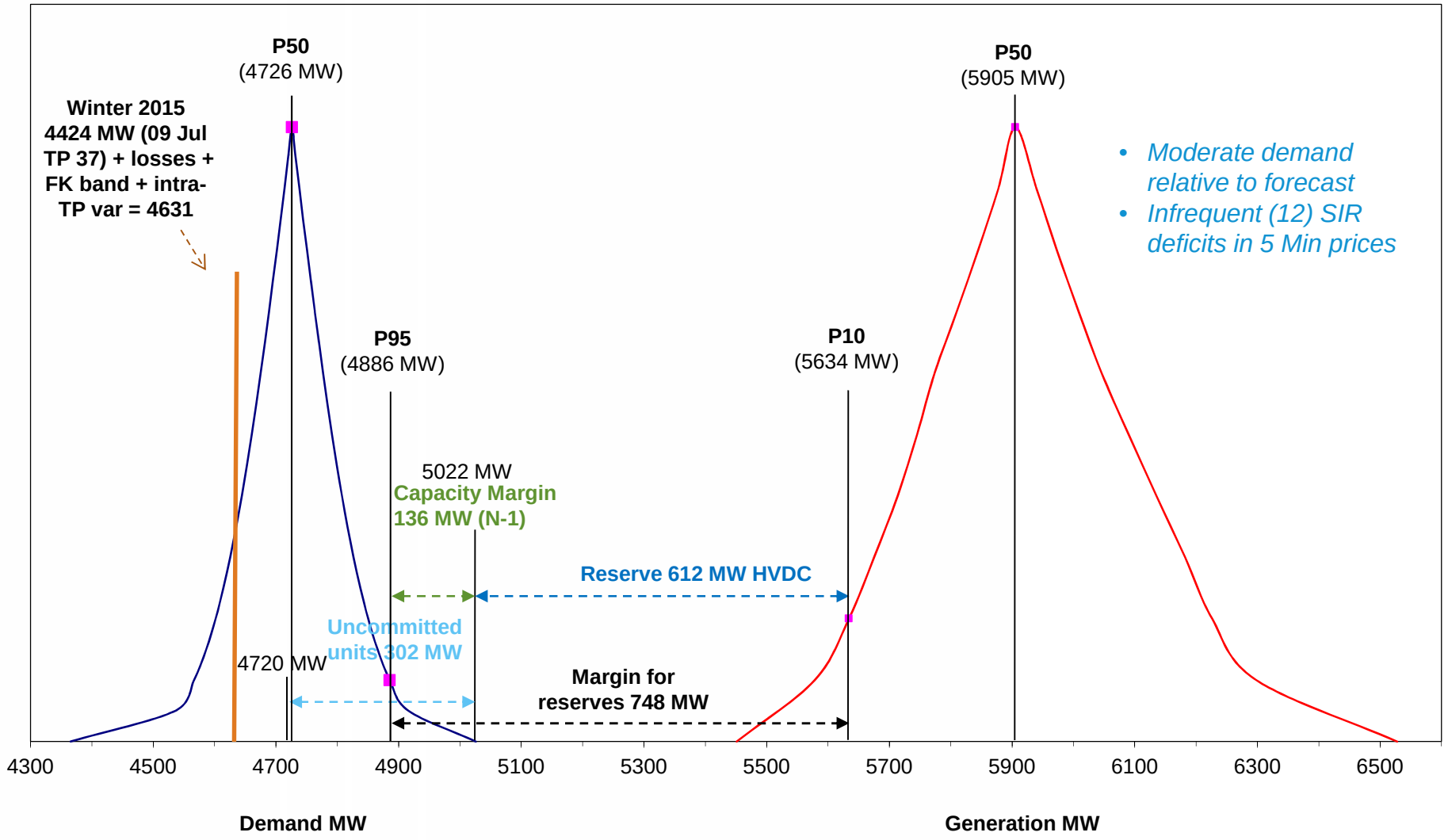
- Methodology
- 2015 summary with observed peak demand
- 2016 fixed generation assumptions and current POCP outages
- 2016 summary

Methodology

The NWG analysis aims to assess the ability of the NZ power system to meet peak winter load, by comparing forecast demand and generation:

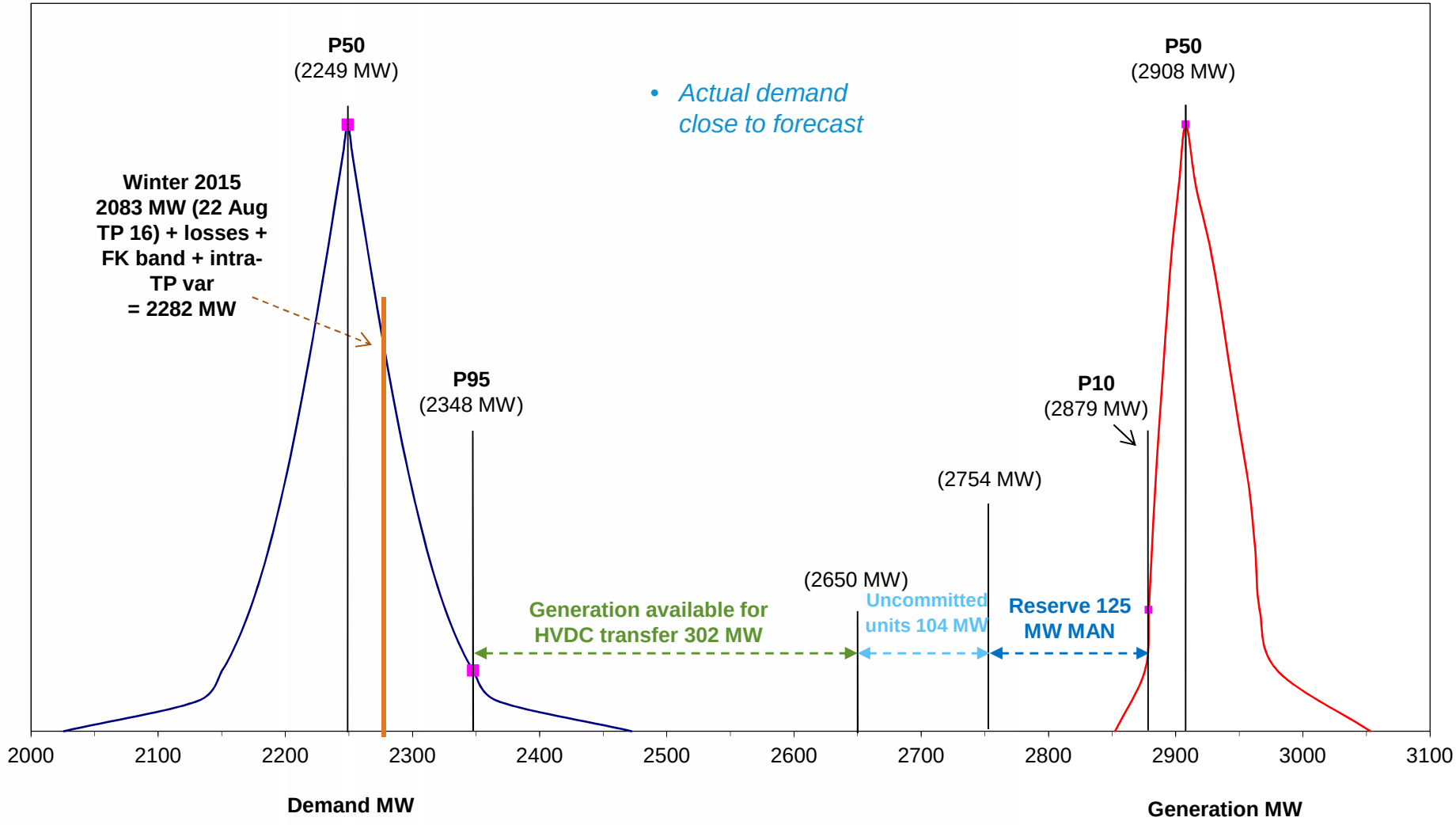
- Variable additions (interruptible load, wind and run of river hydro) are included at 10th percentile from historical data
- Hydro storage, geothermal and thermal generation counted as total station capacity
- Weekday evening demand peaks are considered
- Generation availability reduced for outages notified in POCP
- The largest coincident set of outages in any given week, by island, forms the basis of the NWG scenario
- The demand distributions used are based on P95 peak load forecasts, derived from a 10 year trend, and observed variability
- North and South Island frequency keeping band assumed to be 20 MW and 10 MW respectively

North Island 2015 - recap



- *Moderate demand relative to forecast*
- *Infrequent (12) SIR deficits in 5 Min prices*

South Island 2015 - recap



2016 Fixed Generation

Hydro Storage		MW	Island
Roxburgh	ROX	280	SI
Clyde	CYD	400	SI
Waitaki block	WTR	1538	SI
Manapouri	MAN	800	SI
Waikato block	WTO	1059	NI
Waikaremoana block	WKA	128	NI
Tekapo (A & B)	TEK	176	SI
Tokaanu	TKU	240	NI
Cobb	COB	32	SI
Coleridge	COL	39	SI
Waipori	WPI	80	SI
Total		**4772**	

Geothermal		MW
Poihipi	PPI	51
Ohaaki	OKI	45
Wairakei	WRK	125
Tauhara	TAA	26
Mokai	MOK	114
Rotokawa	RKA	30
Te Mihi	THI	158
Ngatamariki	NTM	82
Kawerau Geothermal	KAG	103
Onepu	ONU	39
Nga Awa Purua	NAP	146
Total		**919**

Uncommitted		Fast	Slow
Roxburgh	ROX	40	
Clyde	CYD	64	
Southdown	SWN	0	
Huntly 1+2 (1 unit)	HLY		250
Total Uncommitted	**SI**	**104**	**0**
	NI	**0**	**250**

Thermal		MW
Stratford peakers	SFD	208
Stratford TCC	SPL	360
Otahuhu	OTA	0
Southdown	SWN	0
Huntly 1+2 (2 units)	HLY	500
Huntly 5	HLY	403
Huntly 6	HLY	50
Whirinaki	WHI	156
McKee peakers	MKE	94
Total		**1538**

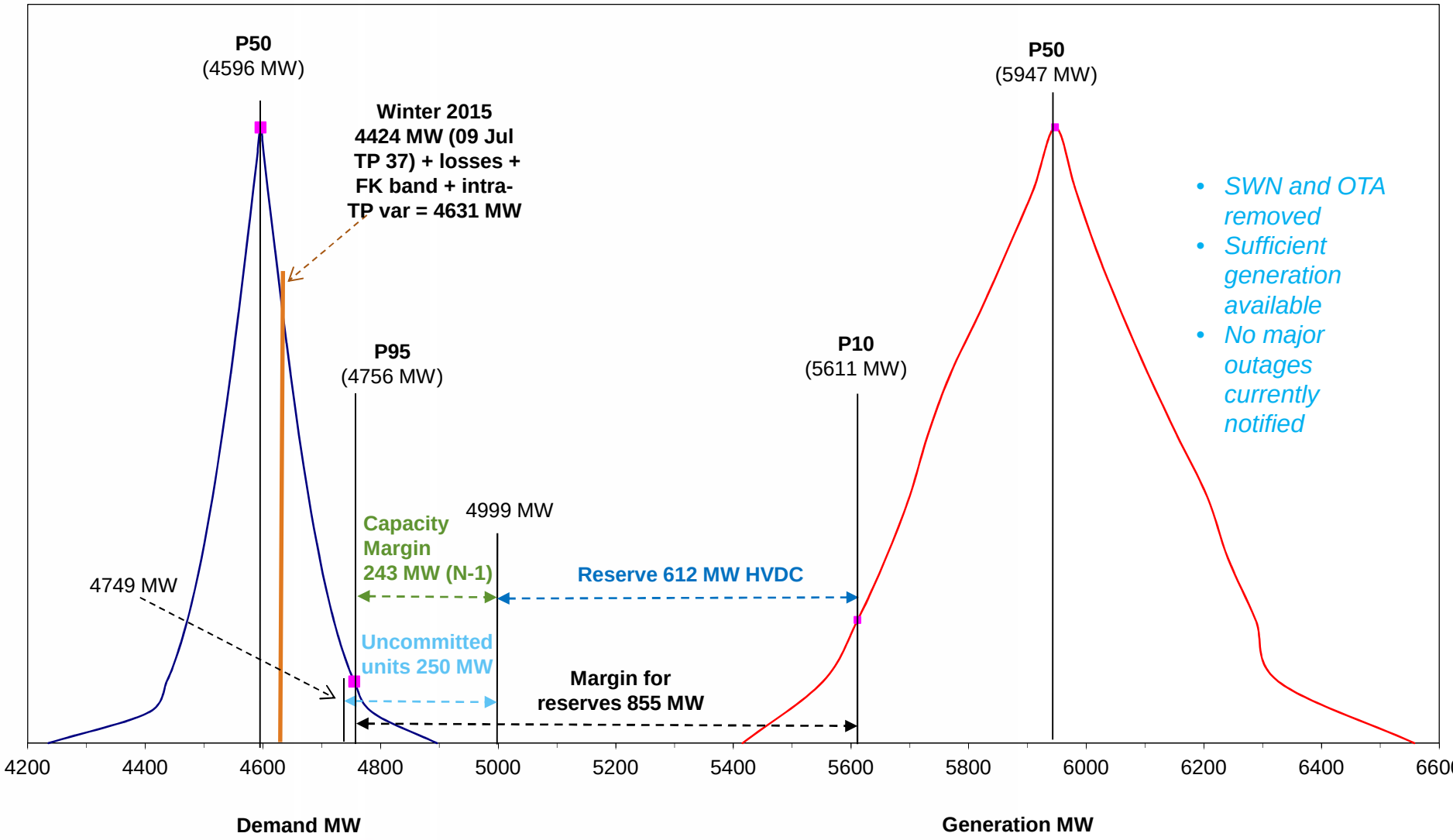
2016 Generator Outages (POCP)

		30/05 - 03/06	06/06 - 10/06	13/06 - 17/06	20/06 - 24/06	27/06 - 1/07	04/07 - 08/07	11/07 - 15/07	18/07 - 22/07	25/07 - 29/07	01/08 - 05/08	08/08 - 12/08	15/08 - 19/08	22/08 - 26/08	29/08 - 02/09
NI	**Thermal**	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0
	Geothermal	15	**25**	0	25	0	0	0	0	0	0	0	0	0	0
	Co-gen	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0
	Hydro	102.4	**137.6**	70.4	70.4	70.4	83.9	83.9	35.2	35.2	80.7	56.2	62.2	35.2	95.4
SI	**SI Hydro**	66	187.5	81	119	0	187.5	**295.5**	172	119	240.5	255.5	119	119	121
	Total	183.4	350.1	151.4	214.4	70.4	271.4	379.4	207.2	154.2	321.2	311.7	181.2	154.2	216.4

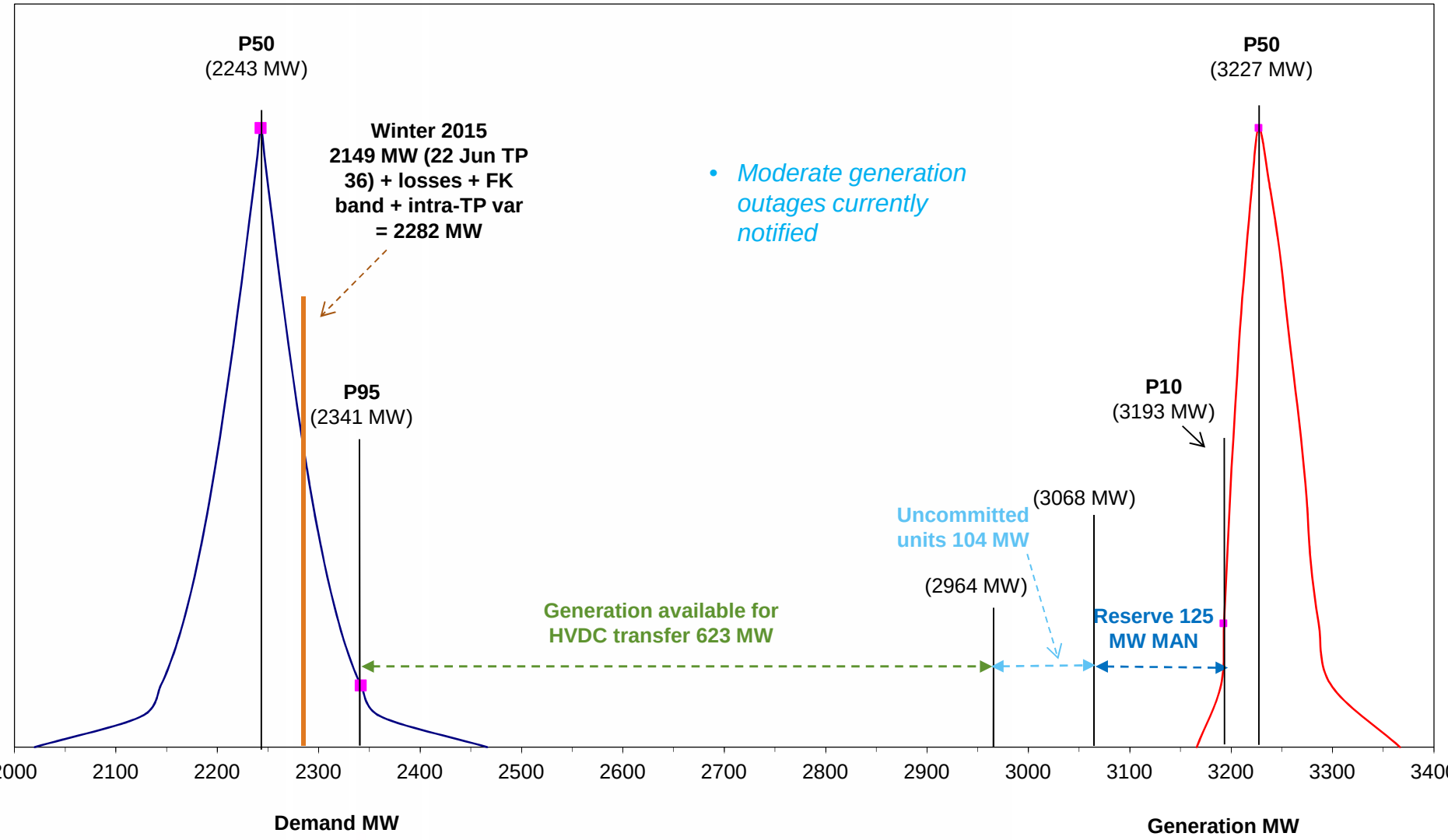
Valid as of 4 March 2016. Greatest coincident outages by island indicated in red.
Southdown POCP entries ignored, Southdown removed via fixed generation values.

Please review and update your outages logged in POCP for this winter.
We will run the outage analysis for the final NWG report in February.

North Island 2016



South Island 2016



Jan – Mar change summary

North Island

- 40MW **increase** in highest coincident outages
- Consequentially 40MW **reduction** in margins

South Island

- 65MW **reduction** in highest coincident outages
- Consequentially 65MW **increase** in margins

Nationally

- 10MW **reduction** in highest coincident outages

2016 Outlook

- Forecast P95 demand peaks for 2016 have reduced from 2015 figures for both islands due to the 10 year trend including more of the flat demand growth in recent years
- The North Island capacity margin is higher than 2015 assuming all fixed generation not on outage is available to the market
- North Island and South Island worst weeks for generation outages are not coincident, lessening the risk of a nationwide capacity shortfall
- Notified generation outages lower than previous observations
- Currently, there are no particular concerns regarding the ability of the power system to meet peak winter demand in 2016