

# Upper North Island Security

## Winter 08 Planning Update

30 May 2008

TRANSPower



SYSTEM OPERATOR  
TRANSPower NZ LTD

24-7  
instant delivery



# UNI Update

- This document includes:
  - Summary from last meeting
  - Updates for participants for:
    - Current situation
    - Projects Updates
    - Voltage Stability limits
    - Proposed future plan
  - This written update is provided in place of a teleconference



## UNI - Last Meeting Summary

- From 3 April 2007
  - With information available at the time, UNI peak winter demand can be met with all available plant in service
  - Based on margins available at the time, no current requirements for
    - NIWA report
    - UNI Contingency plan
  - Will be re-assessed if situation changes:
    - Unexpected outages on generators
    - Significant delays on major projects



## Winter 08 – Current situation

- Winter ratings implemented early, 2<sup>nd</sup> May 2008
- Status changes
  - Delays in commissioning of Ohinewai and new Penrose capacitors advised
- Appropriate to review UNI winter situation
  - What further information is available?
  - Is a contingency plan required?



## Winter 08 – Scenarios and Assumptions

- Scenarios and Assumptions for loads and generation have remained the same as studies completed in April
- Information on pages 6-9 recaps that previously supplied



# Winter 08 – Scenarios Studied

- Scenarios considered for Winter 08
  - All equipment in service
  - Outage of Otahuhu B
  - Outage of Huntly E3P
  - Outage of Otahuhu B & 1 Huntly unit

Scenario	Huntly	Otahuhu B	HLY_OTA_2	OTA_WKM_3
1	YYYYYY 4 x 250 MW @ 172 MVar 1 x 50 MW @ 2 MVar 1 x 405 MW @ 26 MVar	Y 1 x 395 MW @ -60MVar	Y	Y
2	YYYYYY 4 x 250 MW @ 121 MVar 1 x 50 MW @ 38 MVar 1 x 405 MW @ 200 MVar	out	Y	Y
3	YYYYY 4 x 250 MW @ 121 MVar 1 x 50 MW @ 38 MVar	Y 1 x 395 MW @ 202MVar	Y	Y
4	YYYYY 3 x 250 MW @ 121 MVar 1 x 50 MW @ 38 MVar 1 x 405 MW @ 200 MVar	out	Y	Y

## Winter 08 – Generation Assumptions

- Southdown generation = 2 x 53 MW @ 12 MVA<sub>r</sub>, 1 x 38 MW @ 9MVA<sub>r</sub>, 1 x 50 MW @ 8MVA<sub>r</sub>
- Glenbrook generation = 50 MW @ 16 MVA<sub>r</sub>
- Waikato generation = 650 MW
- NPL = 0
- ANC = 0
- Two Otahuhu Syn. Condensers
  - S.C. 1 & 2; -58/+102 MVA<sub>r</sub> total capability
  - S.C. 4, 5, & 6; -29/+31MVA<sub>r</sub> each

# Winter 08 – Load Assumptions

## Upper North Island Winter 2008 AMPK Load Estimate (morning)

	2007	2008	%growth	2008	%growth
	Peak Actual (MW)	Expected (MW)	from 2007 Actual	Prudent (MW)	from 2007 Actual
Top Energy	51.8	52.1	0.58%	63.3	22.20%
Northpower	144.3	150.5	4.30%	157.6	9.22%
Vector	1658.0	1730.0	4.34%	1799.0	8.50%
Counties Power	90.3	93.0	2.99%	98.6	9.19%
NZ Steel	115.0	102.8	-10.61%	121.5	5.65%
WEL Networks	6.4	8.7	35.94%	9.6	50.00%
<b>Total</b>	<b>2065.8</b>	<b>2137.1</b>	<b>3.45%</b>	<b>2249.6</b>	<b>8.90%</b>

- AM&PM Peak loads and power factors very similar so afternoon scenario used for updated studies
- Avalon data used for Actual loads
- 2007 UNI Average Half Hour AM Peak 23/7/07 @ 8:00
- Diversity included in 2008 Expected loads
- Expected 2008 loads calculated from customer data and diversified used Zone 1 AMPK
- % increase between customer Expected and Prudent load data used to calculate Prudent 2008 loads

## Winter 08 – Other Assumptions

- Zone 1 power factors
  - AMPK & PMPK 0.985
- Marsden C2 unavailable
- HVDC = 400MW (500MW for Scenario 4)
- Rest of the North Island modelled for GZ loads as per winter peak



# Winter 08 – Projects Update

## ALB SVC

- In service
- Commissioning tests completed during May

## OHW

- Project delays due to comms/ SCADA issues
- Current planned completion end June

## PEN Caps

- Current planned commissioning dates end June

## HEP Cap

- Commissioned 26/5/08



# Winter 08 – Voltage Stability Limits

- Updated Zone 1 voltage stability limits calculated with currently available information
- Limits similar to last update
- Note these limits have been calculated excluding completion of the following projects:
  - OHW
  - PEN caps

Scenario	Peak	power factor	N-1 Stability Limit	
			Contingency	Zone 1 Load limit
1	AMPK	0.985	Otahuhu B	2579
2	AMPK	0.985	HLY_OTA2	2359
3	AMPK	0.985	Otahuhu B	2439
4	AMPK	0.985	HLY 5	2339



# Winter 08 – UNI Margins Summary

- Winter Peaks

- Prudent demand = 2250 MW
- Indicative transfer limit (0.985 pf) = 2339 MW (scenario 4)
- Margin = 89 MW
- Note: these indicative limits exclude OHW and PEN project commissionings



## Winter 08 – Summary

- With currently available information studies show that UNI peak winter demand can be met with all available plant in service
- Based on margins available no current requirements for UNI contingency plan
- Will continue to monitor and review
- Situation will be re-assessed if required due to:
  - Unexpected outages on generators
  - Significant delays on major projects

## Winter 08 – What's Next

Next update:

- to be advised

