

# Upper South Island (USI)

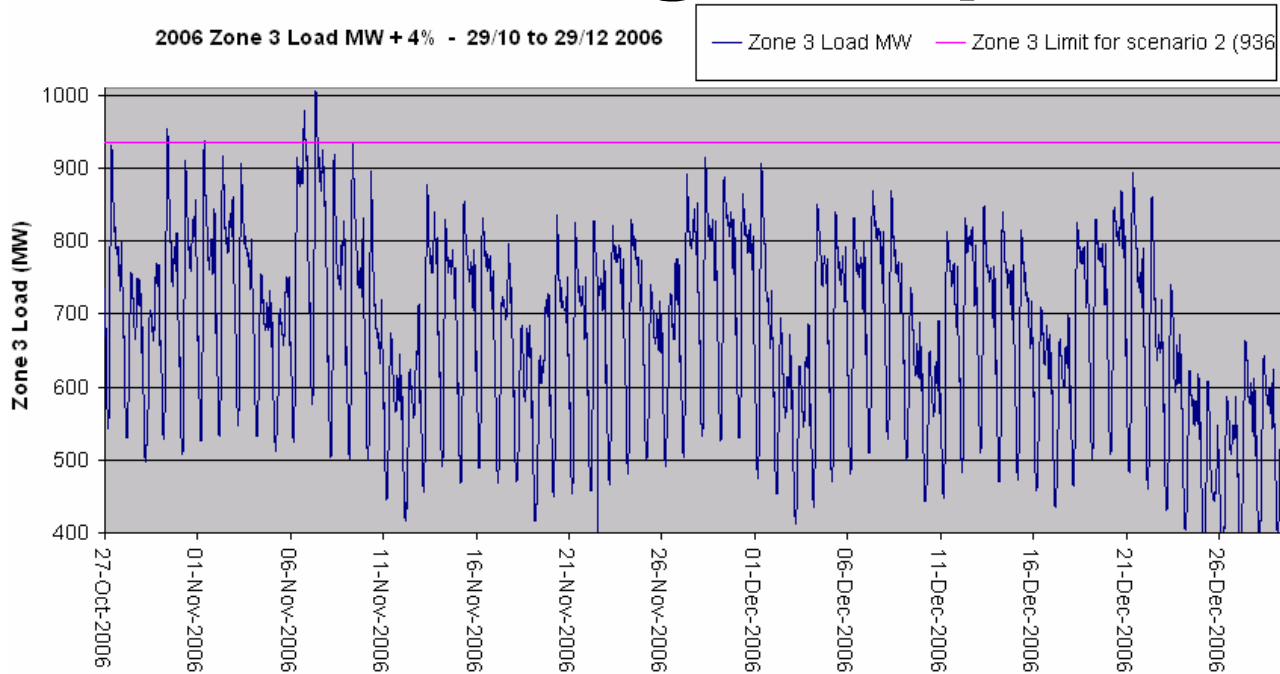
## ISL\_LIV Outage

12<sup>th</sup> September 2007

Telephone Conference 2:00 - 2:30pm



# ISL\_LIV Outage Requirements



- Average expected load peak of 870 MW (incl 4% load growth)
- Expected worst case peak of 1007 MW, (07 Nov 06 08:20 =970 MW + 4% load growth)
  - ~60 MW of controllable load available
  - ~10 MW of extra controllable load at a price (to be confirmed)
- Loads dependent on weather / soil conditions
  - Dry => high Irrigation load (6'th and 7'th Nov)
- Loads expected to trend down after ~ first 2 weeks of November
  - Need to monitor loads closely during first half of November



# ISL\_LIV Outage Requirements

- Worst case contingency of ASB\_TIM\_TWZ
- HBK not expected to be generating due to irrigation
- Limits;

| Station                  | Scenario 1<br>(Medium) MW | Scenario 1A<br>(Medium) MW | Scenario 2 (High)<br>MW | Scenario 3 MW     |
|--------------------------|---------------------------|----------------------------|-------------------------|-------------------|
| Arnold                   | 3                         | 3                          | 3                       | As per scenario 2 |
| Argyle                   | 8                         | 8                          | 11                      |                   |
| Cobb                     | 20                        | 20                         | 30                      |                   |
| Coleridge                | 25                        | 25                         | 35                      |                   |
| <b>Highbank</b>          | <b>0</b>                  | <b>0</b>                   | <b>0</b>                |                   |
| Kumara                   | 10                        | 10                         | 10                      |                   |
| Tekapo A                 | 15                        | 15                         | 25                      | 0                 |
| Tekapo B                 | 80 (2 machine)            | 80 (1 machine)             | 160 (2 machines)        | 50 (1 machine)    |
| <b>Total</b>             | <b>161</b>                | <b>161</b>                 | <b>274</b>              | <b>50</b>         |
| <b>Zone 3 Load Limit</b> | <b>921</b>                | <b>911</b>                 | <b>936</b>              | <b>926</b>        |

- Limits based on P.F of 0.97
- AUVLS armed



# ISL\_LIV Outage – Concurrent Outages

| Outage Blocks       | Start Date & Time    | End Date & Time      |
|---------------------|----------------------|----------------------|
| TKA1 (12.6 MW lost) | Sat 13/10/2007 20:31 | Wed 31/10/2007 18:00 |
| TKA1 (25 MW lost)   | Tue 6/11/2007 06:30  | Tue 6/11/2007 18:00  |

- ISL LIV 27 Oct – 14 Dec
  - recall 4-5 days.
- Concurrent outage issues resolved
  - ISL WPR CUL KIK 2 outage revised (brought forward to avoid outage clash)
  - Reduced output of TKA 12 – 31 Oct.
    - Full reactive capability available
    - Voltage stability limit reduced ~ 5MW
- Assessment information POCP: <http://pocp.redspider.co.nz/>



# ISL LIV Outage Contingency Plan

- Contingency plan for the permanent loss of one of the three remaining circuits between Twizel and Islington
  - Immediate recall of ISL-LIV –or return of faulted circuit
  - USI run to N security
  - Manage USI to N-1 only if very high likelihood of a further tripping
    - Grid Emergency & Demand Allocation process
- Refer to “Upper South Island Summer Security 2007 Islington Livingston Duplexing” compiled by Andrew Twaddle



# ISL LIV Outage – Summary

- Manageable to N-1 with full plant available
  - Reliance on controllable load to manage some peaks
  - Limits and realtime load posted on SO website
- Monitor irrigation load and load variability
  - Historically first 2 weeks of NOV higher variability
  - Arming of AUVLS for the first week of the outage and review
- Short duration outages - co-ordinated against actual system conditions
- Contingency plan in place
- Situation review two weeks prior to start of outage
  - Operational phone briefing 12<sup>th</sup> Oct

