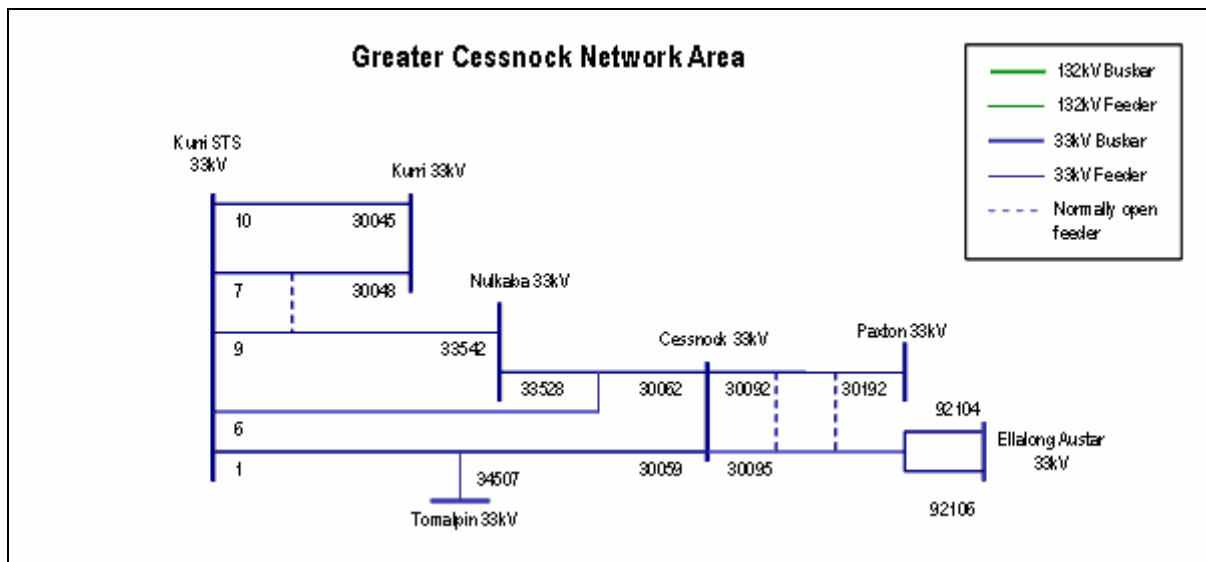


## DEMAND MANAGEMENT SCREENING TEST

### Cessnock Zone

#### Current Supply Arrangements

The 33kV network supplying Cessnock and Nulkaba zone substations is fed from Kurri sub—transmission substation.



Cessnock zone supplies residential and commercial centres in the hunter valley including Cessnock, Bellbird and Aberdare. Cessnock zone substation also supplies the vineyards to the west of Cessnock.

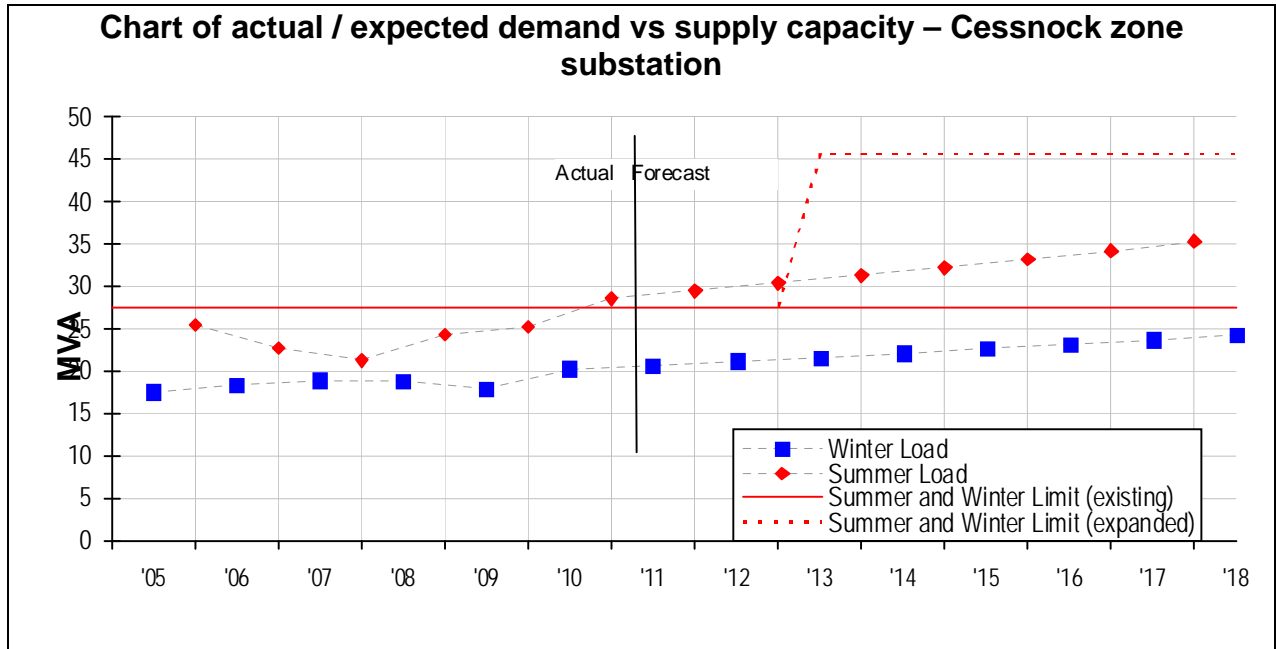
#### Supply Capacity and Demand Forecast

Cessnock zone substation has a licence capacity of 27.5MVA in both summer and winter. The forecast indicates that the licence capacity will be exceeded in summer 2010/11.

Cessnock zone supplies residential and commercial loads. The peak demand occurs during summer afternoons.

Cessnock zone substation is scheduled for replacement in 2013. The 11kV switchgear and 33kV circuit breakers at the substation are both recommended for replacement before 2014.

The licence capacity will increase from 27.5MVA for both summer and winter to 45.6MVA for both summer and winter. The load forecast for Cessnock zone will not exceed the increased licence capacity within the forecast period.

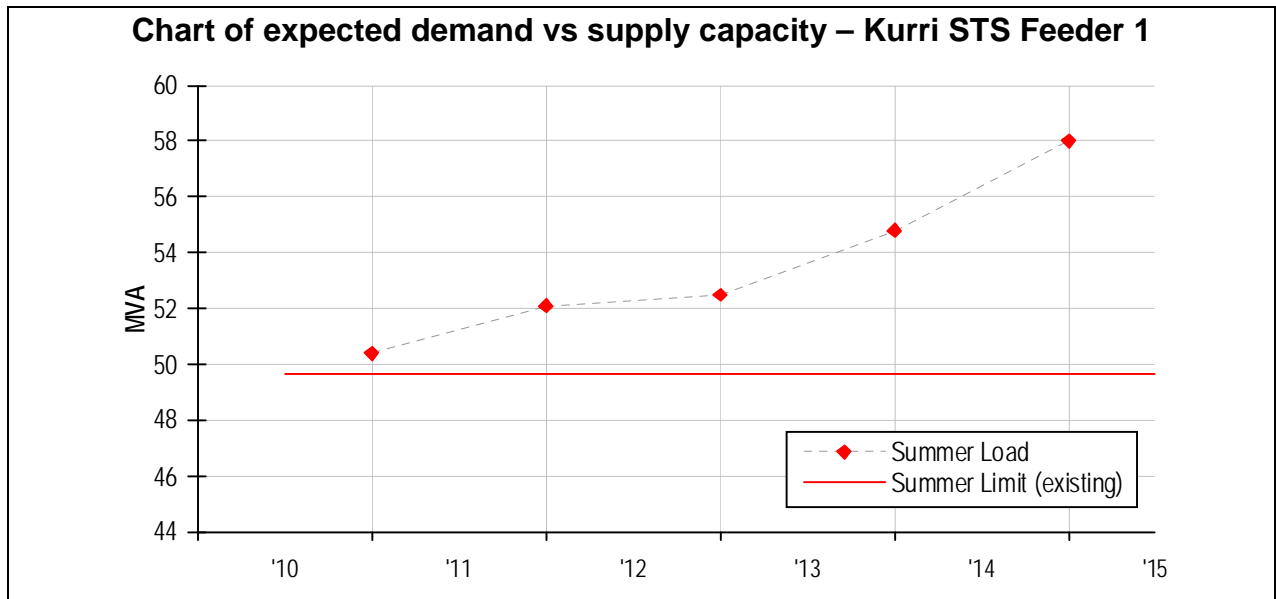


The 33kV network supplying Cessnock and Nulkaba zones has capacity constraints during an N-1 contingency situation.

Kurri sub-transmission substation feeder 1 has a licence capacity of 49.7MVA for summer and load flow analysis has forecast that this will be exceeded by 0.6MVA in summer 2010/11.

In the longer term, this capacity constraint will be alleviated by 33kV capacitors installed when the replacement Cessnock zone is built in 2013.

This chart does not include the impact of the 33kV capacitors at the new Cessnock zone.



### Supply Strategy Option

The preferred supply strategy is a 5MVA load transfer from Cessnock zone substation to Nulkaba zone substation. The first stage is a 2MVA load transfer in 2010/11, then a second stage of an additional 3MVA load transfer in 2011/12.

This involves increasing the capacity of an 11kV feeder in Cessnock zone, laying a new 11kV cable from Nulkaba zone and associated network rearrange work.

The cost estimate for this work is \$1.6M, and a decision on this investment must be made by September 2010.

### Required Demand Management Characteristics

To defer this investment by 1 year a demand reduction of a total of 1.1MVA at Cessnock zone substation is required for summer 2010/11. This reduction will address the capacity constraint of Feeder 1 Kurri STS.

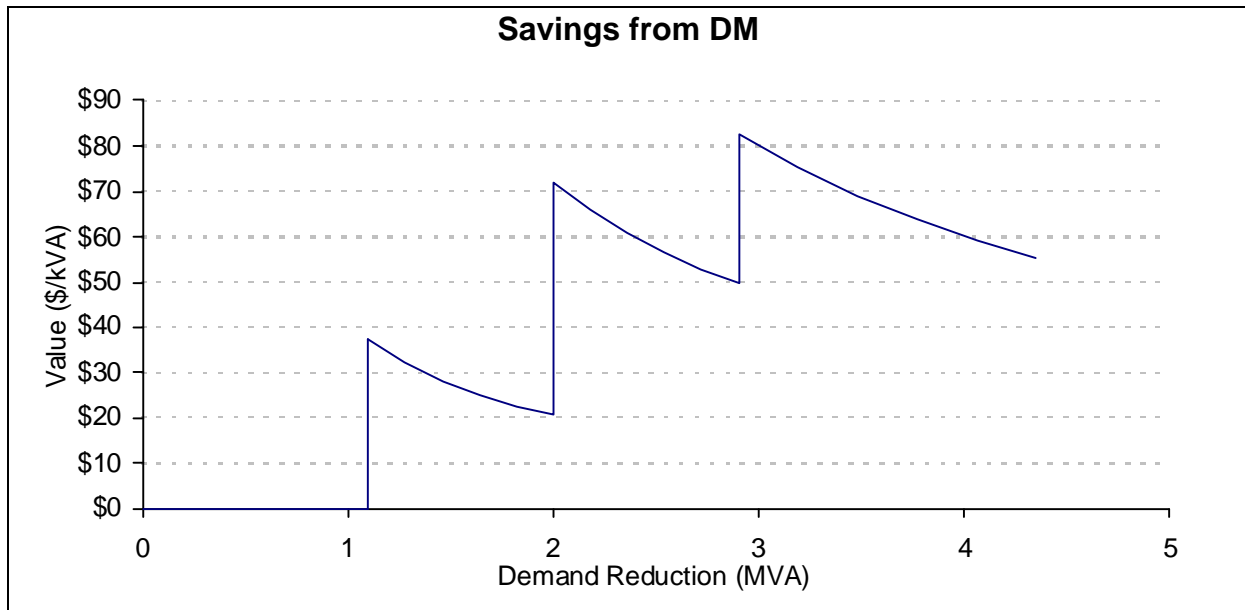
The potential saving from a 1 year deferral is \$40,000 or \$37/kVA.

A 2 year deferral requires a 2.4MVA reduction for summer 2011/12, 2MVA which must come from Cessnock zone substation. The Wollombi generator, in place to support the 11kV feeder 48039 at Laguna, can supply at minimal cost the additional 400kVA reduction required in addition to the 2MVA at Cessnock zone substation.

The potential saving from a 2 year deferral is \$140,000 or \$72/kVA.

A 3 year deferral requires a 2.9MVA reduction for summer 2012/13 from Cessnock zone substation. The potential saving from a 3 year deferral is \$240,000 or \$83/kVA.

In 2013 a new Cessnock zone substation will be built, increasing the licence capacity to 45.6MVA and removing the capacity constraint on Cessnock zone substation. When the new substation is built, capacitors will be installed on the 33kV busbar, reducing the load on the 33kV cable feeder 1 Kurri STS.



While the demand reduction required is small, the potential savings are so low it is not reasonable to expect an effective DM option can be found in an investigation.

### Recommendation

Based on this analysis it is not considered reasonable to expect that it would be cost-effective to postpone the proposed supply-side solution by implementing demand management strategies.