

DEMAND MANAGEMENT SCREENING TEST

Drummoyne Zone Substation

Current Supply Arrangements

Drummoyne zone substation was designed to be a 3 transformer 132/11kV zone substation, and is supplied by three 132kV cables. Drummoyne zone substation currently has two 45MVA transformers, and a third transformer, which is currently located at Drummoyne substation but is not connected.

The design limit for Drummoyne zone substation is 67.3MVA for summer and 74.1MVA in winter, and is limited by the emergency rating of the transformers.

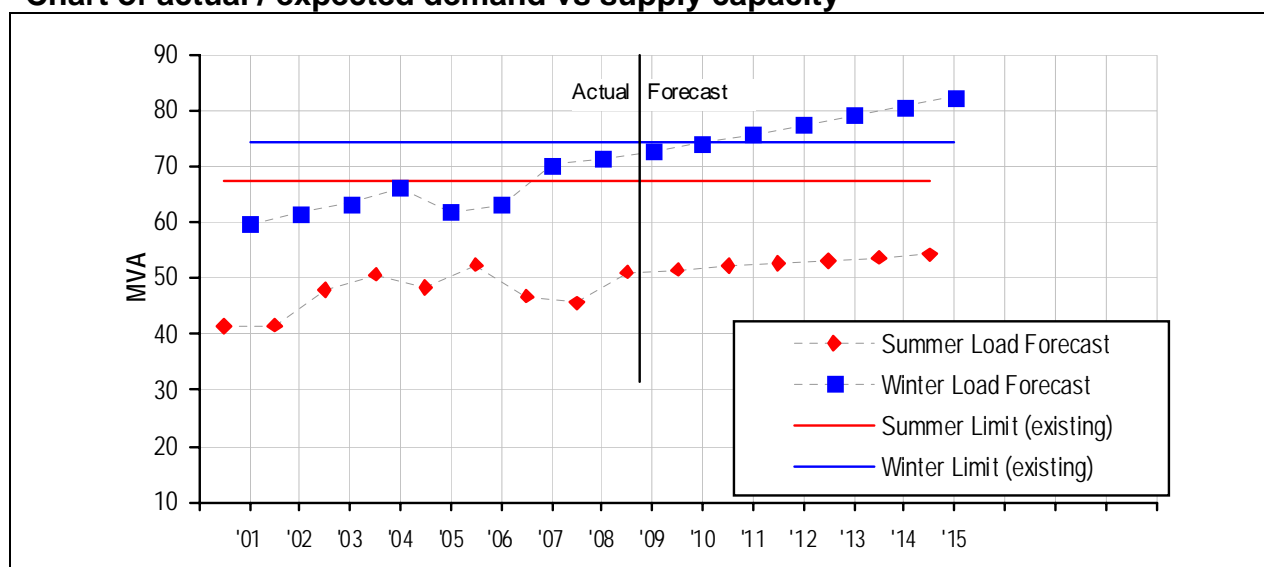
The substation supplies parts of Abbotsford, Balmain, Balmain East, Birchgrove, Chiswick, Drummoyne, Five Dock, Rozelle and Russell Lea.

Supply Capacity and Demand Forecast

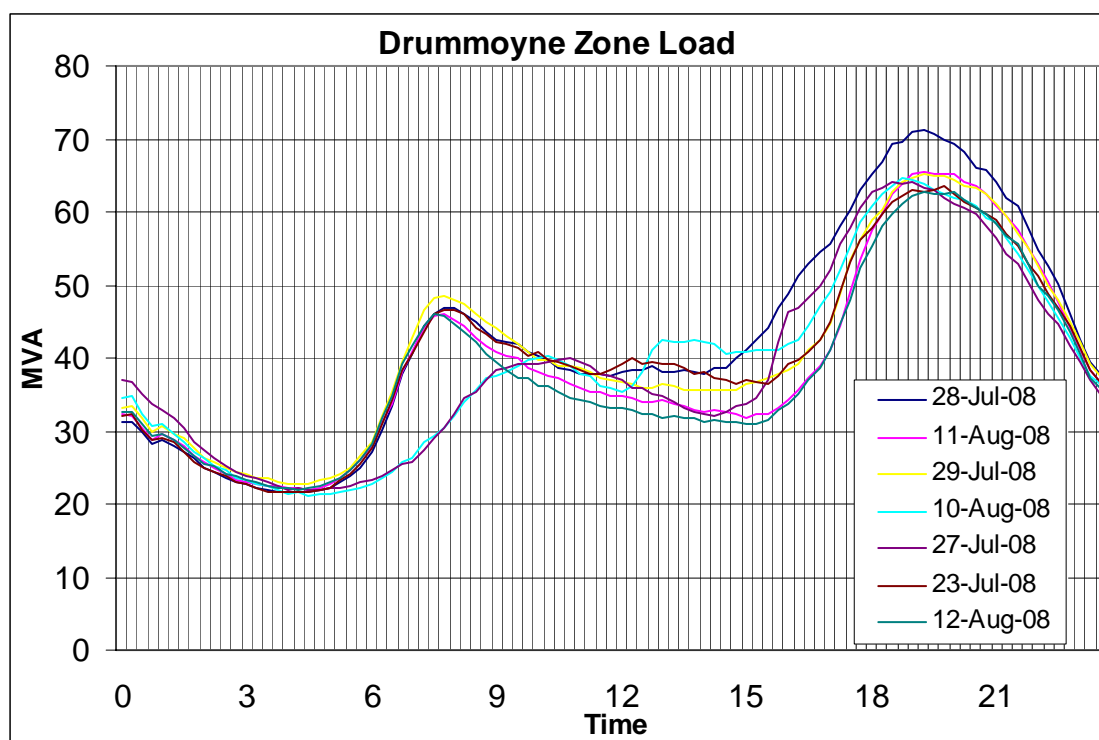
The load on Drummoyne zone substation is predominately residential and the peak demand occurs during winter between 6pm and 9pm.

The forecast peak demand for Drummoyne zone is shown on the chart below. In winter 2011 the peak load would be approximately 1.6MVA above the design planning limit.

Chart of actual / expected demand vs supply capacity



The load cycle for Drummoyne zone is shown on the chart below. The seven days with the highest loads for winter 2008 are shown.



Supply Strategy Option

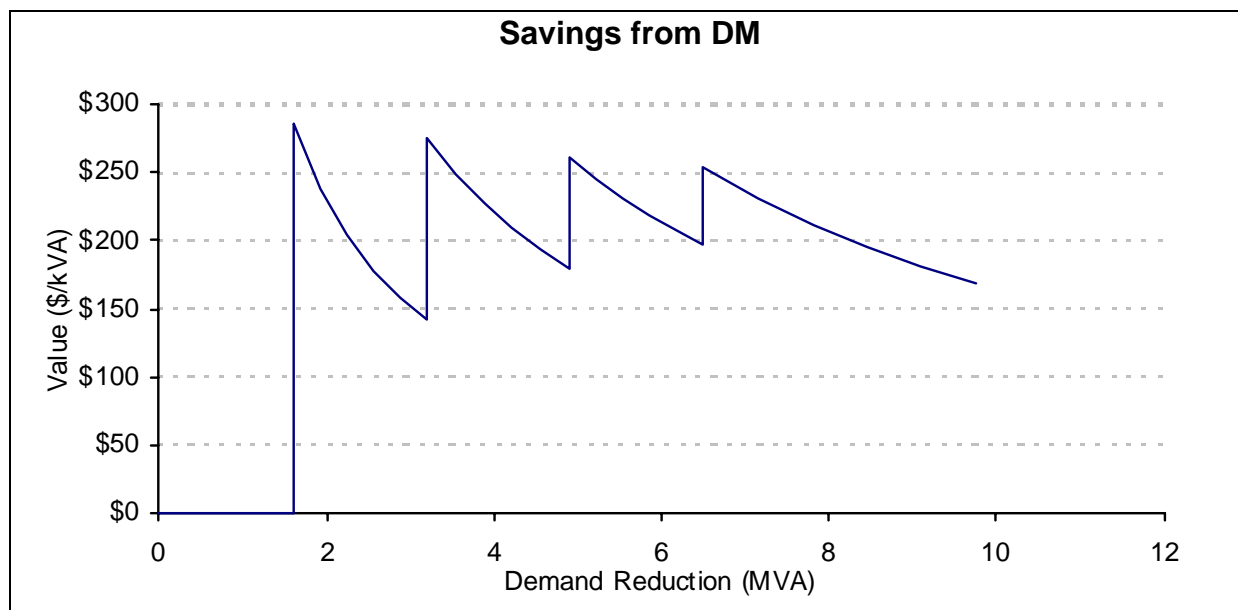
The preferred supply side option is to connect the third 45MVA 132kV transformer and install a new group of 11kV switchgear.

To meet the required completion date of May 2011, a decision on this investment would need to be made by August 2009. The cost of this option is estimated at \$6.6M

Required Demand Management Characteristics

To achieve a one year deferral of the proposed investment, we would need to identify and implement 1.6MVA of demand management by May 2011. 1.6MVA represents 2.1% of the total load on Drummoyne zone, which is low. The saving from a one year deferral would be \$460,000, or \$284/kVA, which is moderate.

To achieve a two year deferral we would need to identify and implement 3.2MVA of demand reduction by May 2012, 3.2MVA represents 4.1% of the load on Drummoyne zone, which is low. The saving from a two year deferral would be \$880,000 or \$275/kVA which is moderate.



Between October 2006 and May 2007, 81,347 CFL lights were installed in Drummoyne zone load area and a load reduction of 0.9MVA was achieved at a cost of approximately \$350/kVA. The resulting load reduction deferred the connection of the transformer from its original installation date of winter 2006.

The Demand Management and Planning Project (DMPP) has identified opportunities for demand management at large customer sites in the Sydney metropolitan region. The DMPP has identified one site on feeder 18 in Drummoyne zone. 433kVA of total potential demand reduction was identified at a cost of about \$210,000, or \$483/kVA. Even if the total amount of demand reduction could be achieved at this site it is not large enough to enable even a single year of deferral.

Although the demand requirement is low, and the savings are moderate, the requirement is to reduce residential load during the winter peak. The possible savings (in \$/kVA) are lower than the successful demand management project, and the estimated costs of the opportunity identified by the DM&P.

Recommendation

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