

## DEMAND MANAGEMENT SCREENING TEST

### Drummoyne 11kV Feeders 14 and 26

#### Current Supply Arrangements

The system under consideration consists of Drummoyne zone substation 11kV feeders 14 and 26. They supply a region including Drummoyne north of Lyons Rd.

This system is designed so that if either of the feeders experiences an outage the loads on that feeder can be picked up by the other interconnected feeder. This should be achieved with a maximum of 3-5 switching operations, which aligns with the licence requirement that 11kV customer interruptions in urban areas should be less than 4 hours.

The feeders provide the majority of the alternate interconnections for each other. In the event of an outage of the critical section of any one of these feeders, the majority of the load would be picked up by the remaining feeder in the group.

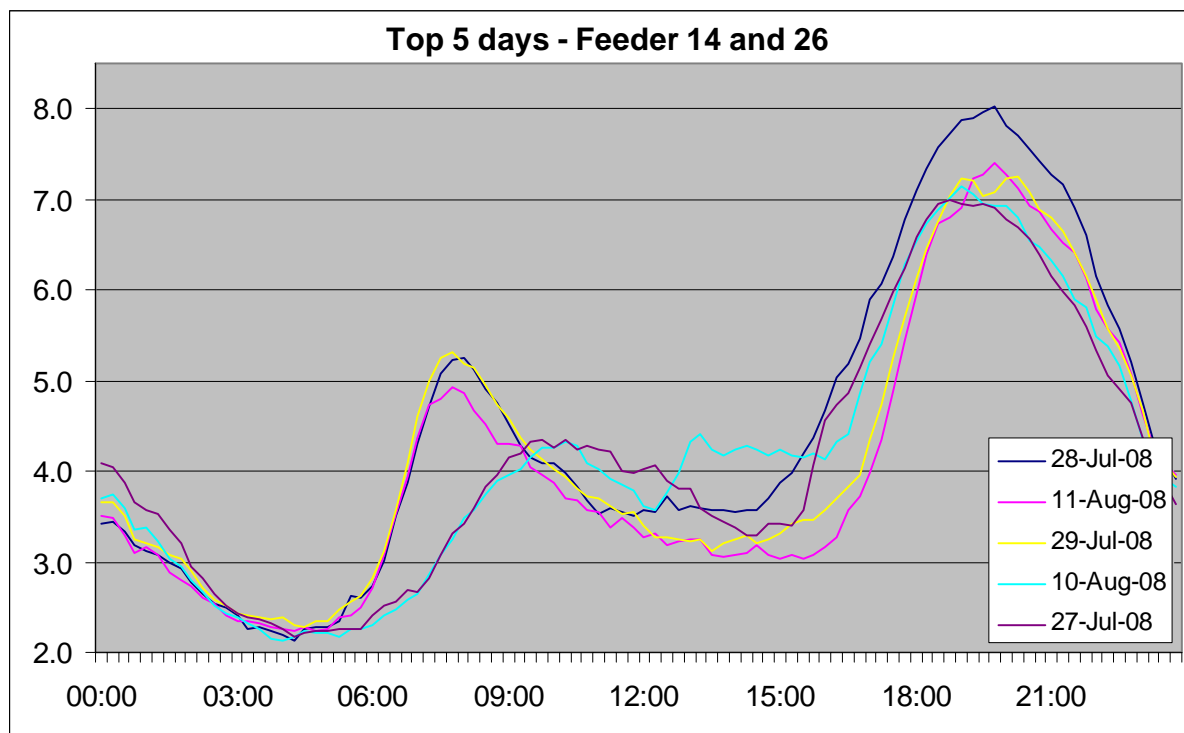
The ability of this system to meet these requirements is limited by several critical sections of the feeders concerned.

#### Supply Capacity and Demand Forecast

The load at Drummoyne zone, including feeders 14 and 26, is forecast to grow at 1.0% in summer and 2.1% in winter. The load in this area is predominately residential, with peak demand between 6pm and 9pm, with winter demand higher than summer demand.

The table below summarises the rating and forecast critical feeder loads under the worst case outage scenarios as they would be in winter 2010.

Outage of Critical section of feeder	Pick up Feeder	Rating of Limiting Section (MVA)	Forecast Load at critical section (MVA)	DM Requirement
Feeder 14	Feeder 26	2.9	3.5	0.6
Feeder 26	Feeder 14	2.9	3.5	0.6



### Supply Strategy Option

The preferred supply side option is to install new cable and some rearrangement of existing network assets to increase the capacity of feeders 14 and 26.

The cost of this project is estimated at \$1.7m, with commissioning proposed for June 2010. An investment decision is required as soon as possible.

### Required Demand Management Characteristics

Based on the outage scenarios identified above, a reduction in demand of 0.6 MVA on feeders 14 and 26 would be required to defer the need by one year. The rate of growth is very low, approximately 40kVA a year.

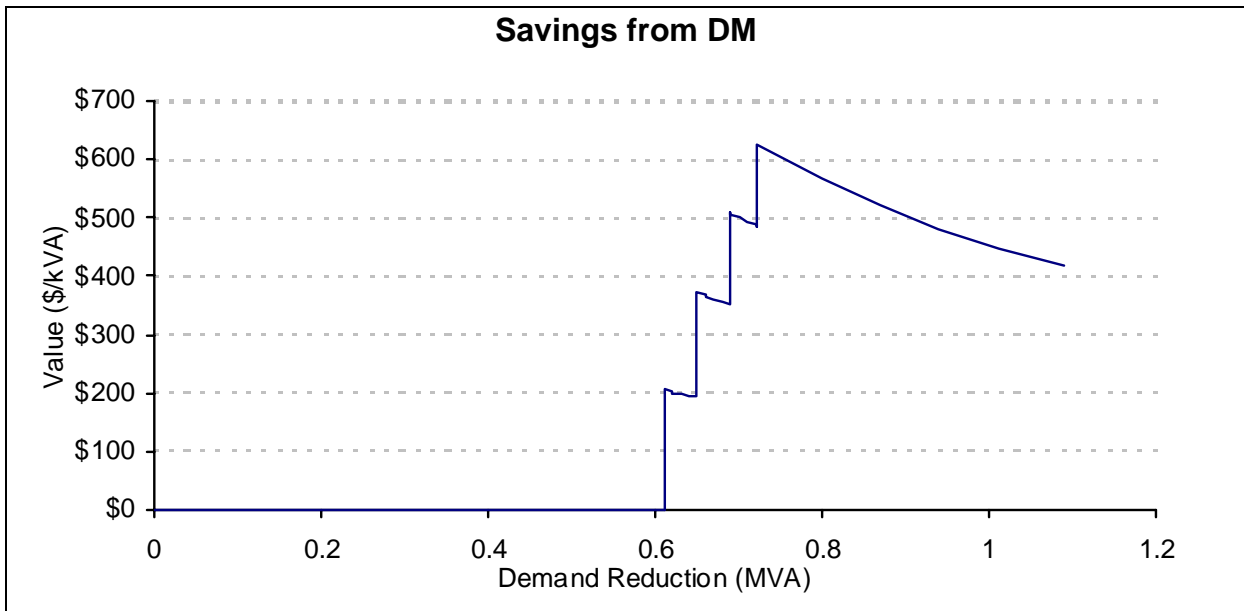
The demand reduction would need to occur in winter, between 6pm and 9pm.

To achieve a one year deferral we would need to identify and implement 0.6MVA of demand reduction for winter 2010, which represents 17.6% of the total forecast demand of the relevant feeders which is high. The savings from a one year deferral would be \$125,000 or \$204/kVA which is moderate.

To achieve a two year deferral we would need to identify and implement the original 0.6MVA plus an additional 40kVA of demand reduction for winter 2011, which represents 18.5% of the total forecast demand of the relevant feeders which is high. The savings from a two year deferral would be \$241,000 or \$373/kVA which is high.

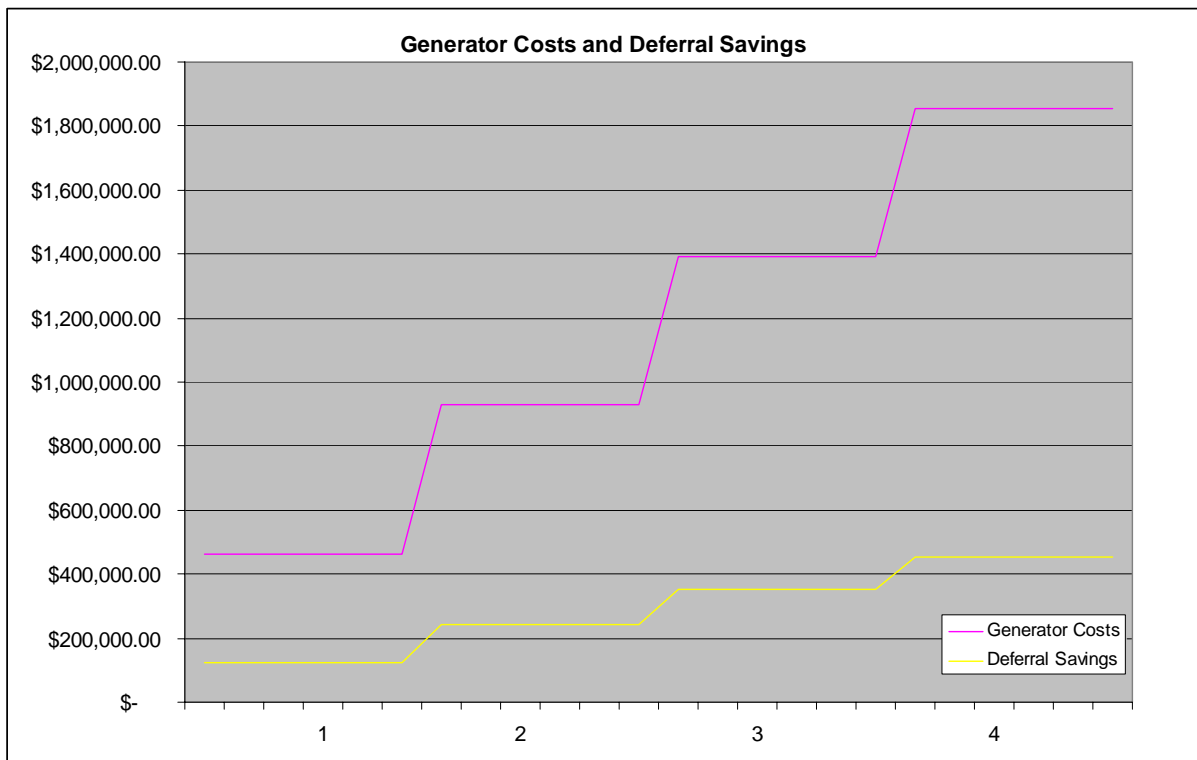
To achieve a three year deferral we would need to identify and implement the original 0.6MVA plus an additional 40kVA of demand reduction for winter 2012, which

represents 19.4% of the total forecast demand of the relevant feeders which is high. The savings from a one year deferral would be \$350,000 or \$511/kVA which is high.



The Demand Management and Planning Project (DMPP) identified opportunities in the Sydney metropolitan region for demand management at large customer sites. Although opportunities for demand management were identified in Drummoyne Zone substation load area, none of these customers were supplied by the relevant feeders.

The estimated cost of 1.2MVA temporary generator was compared with the possible savings from the projects deferrals and the results are shown below.



The most cost effective residential opportunity for a winter evening peak is to install CFLs, and we have already installed CFLs throughout Drummoyne as part of a DM project recently. The reduction throughout the entire Drummoyne zone substation load area was 1MVA, and so it's unlikely that a 600kVA reduction would be achieved through two feeders.

The demand requirement is low in absolute terms, although it is high in proportion to the total demand on the relevant feeders. While the savings from a deferral are moderate for the first year, the possible savings are high for the following years.

The DM&P study did not identify any opportunities for load reductions indicating that the likelihood of finding large demand reductions is low, and the load is predominantly residential which also reduces the likelihood of finding cost effective opportunities. And the cost of relocatable generators also exceeds the potential deferral savings for every year.

### **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.