

## DEMAND MANAGEMENT SCREENING TEST

### Little Bay URD

#### Current Supply Arrangements

The system under consideration consists of Matraville Zone Substation 11kV feeders 7, 8 & 36.

These feeders are interconnected, and supply an area including parts of Matraville, Malabar and Little Bay.

This system is designed so that if any one feeder experiences an outage, the loads on that feeder can be picked up by either of the other two interconnected feeders. This should be achieved with a maximum of 3-5 switching operations, as stipulated in the licence requirement that 11kV customer interruptions in urban areas with a population greater than 5,000 people should be less than 4 hours.

#### Supply Capacity and Demand Forecast

Summer is the critical season for this system, with peak demand in the daytime period. The area is a mix of residential and commercial loads.

There is a major new spot load proposed in the Little Bay area which will first require supply in January 2012. It has an ultimate maximum demand of 3.3MVA which will be reached in summer 2015/16. The nearest existing supply point for this load is on feeder 36 between S3519 and S35216.

The forecast for the worst case summer loading under emergency conditions is described in the table below.

Scenario	Pickup Feeder(s)	Limiting Section	Capacity of Limiting Section (MVA)	Summer Emergency Load forecast (MVA)			
				2012/13	2013/14	2014/15	2015/16
Fault on feeder 36	7 & 8	Pa36 between S35216 & S8906	3.1	3.1MVA	3.3MVA	3.6MVA	3.9MVA

This shows that in summer 2015/16 the forecast demand would be above the licence limits under emergency conditions. Note that currently there is significant uncertainty about the staging of the new loads for the Little Bay URD prior to 2015/16.

#### Supply Strategy Option

The proposed supply side project will form a new feeder from Matraville Zone to the Little Bay development site using new and existing cable. An interconnection to Panel 7 will also be formed.

The cost of this project is estimated at \$1.4m. The proposed commissioning date is January 2012. To meet this date a decision on this investment must be made at least 12 months prior to the commissioning date.

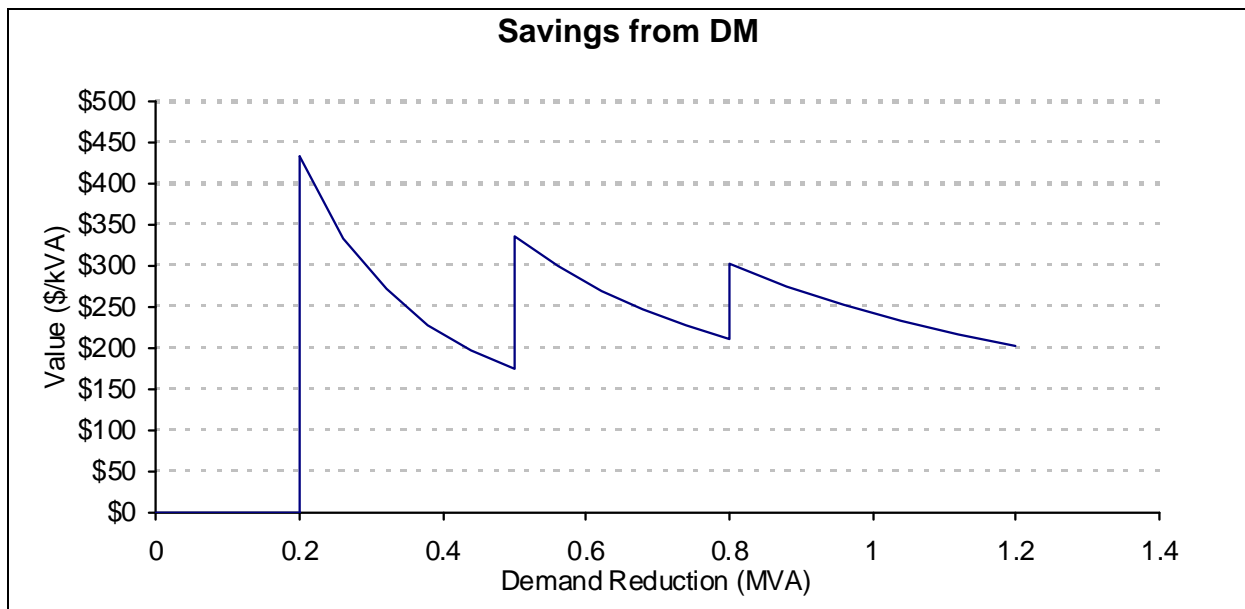
It should be noted that if this project could be deferred with demand reductions, approximately \$130,000 in costs will still be incurred prior to January 2012 to provide a supply point for the new spot load.

### Required Demand Management Characteristics

If demand could be reduced by 0.2MVA by summer 2013/14, the proposed investment could be deferred by 1 year. The demand reductions would need to occur specifically at S3519 and S35216 or the new spot load to ensure that capacity limits were not exceeded for the relevant emergency scenarios. This is 14% of the total demand on these substations. The savings from this deferral is \$90,000, or \$433/kVA, which is high.

If demand could be reduced by 0.5MVA before summer 2014/15, then the proposed investment could be deferred by two years. This is 34% of the total demand on these substations. The savings from this deferral is \$170,000, or \$335/kVA, which is moderate.

If demand could be reduced by 0.8MVA before summer 2015/16, then the proposed investment could be deferred by three years. This is 56% of the total demand on these substations. The savings from this deferral is \$240,000, or \$304/kVA, which is also moderate.



The demand reduction requirement is small in absolute terms but large as a proportion of total demand on the critical substations. The deferral value is low in absolute terms, but moderate to high in \$/kVA. The demand reduction must occur at a small number of specific loads points on the 11kV network.

One demand management option that is likely to provide the necessary demand reduction in the specific location required is relocatable diesel generators. We know

from experience that this option, when site setup costs are included, will be considerably most expensive than the savings from deferral.

On balance, it is not considered reasonable to expect that this investment could be cost effectively deferred via demand management options.

### **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.