

DEMAND MANAGEMENT SCREENING TEST

Berowra South 11kV

Current Supply Arrangements

The system under consideration consists of Berowra Zone Substation 11kV feeders 13 and 23, and Hornsby Zone Substation 11kV feeder 44.

These feeders are interconnected, and supply the areas south of Berowra Zone, including parts of Berowra, Asquith, Mt Colah and Mt Kurin-gai. The area is mainly residential with some commercial loads.

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 evening period. There are also some significant new spot loads expected on the relevant feeders.

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

Scenario	Pickup Feeder	Limiting Section	Capacity of Limiting Section (MVA)	Summer Night Emergency Load forecast (MVA)			
				2009/10	2010/11	2011/12	2012/13
Fault on feeder 13 - S8344/S1492/S4779 tee	Fdr 22 Hornsby	Fdr 22 between S1705 & ABS 80	3.0	4.7	4.9	5.1	5.4

This shows that in summer 2009/10 the forecast demand would be above the licence limits for this emergency scenario.

Supply Strategy Option

The proposed supply side investment involves construction of a new feeder cable from Berowra Zone Substation to the corner of Beaumont Rd and the Pacific Highway, with some additional minor works to split loads on existing feeder 13.

The estimated cost of the works is \$2.85m. The proposed commissioning date is December 2009, with an investment decision to be made as soon as possible.

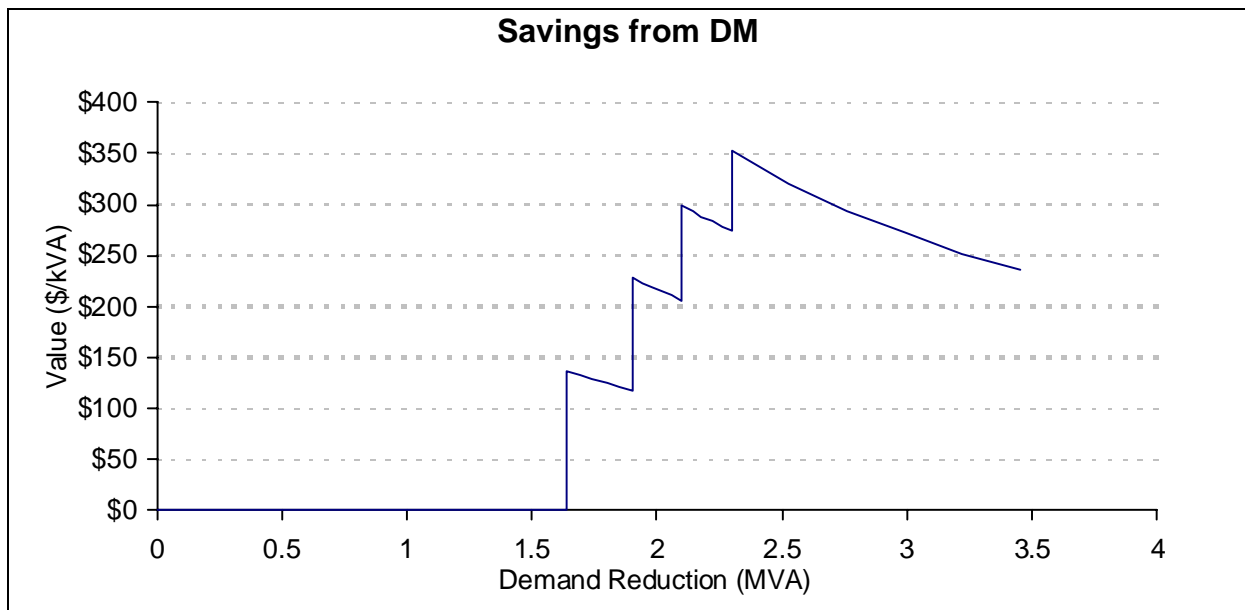
Required Demand Management Characteristics

If demand could be reduced by 1.7MVA before summer 2009/10, then the proposed investment could be deferred by one year. The demand reduction would need to occur specifically on the feeder section between S4779 (on Fdr 13) and S668 (on Fdr 22). This represents 35% of the total demand on this feeder section.

The value of this deferral is \$220,000 or \$137/kVA, which is moderate.

If demand could be reduced by 1.9MVA, then the investment could be deferred by 2 years. This represents 40% of the total demand on the feeder section. The value of this deferral is \$430,000 or \$228/kVA, which is moderate.

If demand could be reduced by 2.1MVA, then the investment could be deferred by 3 years. This represents 45% of the total demand on the feeder section. The value of this deferral is \$630,000 or \$300/kVA, which is high.



The demand reduction requirement is moderate in absolute terms but very high relative to total demand on the specific feeder location where it is required. The savings from deferral are moderate to high, however the timeframe before an investment decision must be made is short.

On balance it is not considered reasonable to expect that the proposed investment could be deferred with demand management strategies.

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.