

DEMAND MANAGEMENT SCREENING TEST

Castle Cove Zone Development

Current Supply Arrangements

The system under consideration consists of Castle Cove Zone Substation 11kV feeders 15, 43 & 44.

These feeders are interconnected, and supply an area including parts of Willoughby, Willoughby North, Willoughby East and Northbridge.

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 feeders in the group.

This system is to be designed so that each feeder has switchable interconnection to adjacent feeders enabling restoration for an unplanned network element failure in less than 4 hours, as stipulated in the licence requirement for 11kV customer interruptions in urban areas (ie a population greater than 5,000 people).

Supply Capacity and Demand Forecast

Winter is the critical season for this system, with peak demand in the evening period. The area is predominantly residential, with some commercial loads.

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

Scenario	Pickup Feeder	Limiting Section	Capacity of Limiting Section (MVA)	Winter Emergency Load forecast (MVA)		
				2010	2011	2012
Fault on feeder 43	43 at Mosman	Fdr 43 trunk	6.8	7.4	7.4	7.4
Fault on feeder 44	15	Fdr 15 trunk	6.8	9.1	9.2	9.2

This shows that in winter 2010 the forecast demand would be above the licence limits on a number of different feeders.

Supply Strategy Option

The proposed supply side project involves the replacement of limiting cable sections on feeders 15, 43 and 44, along with the changing of some open points.

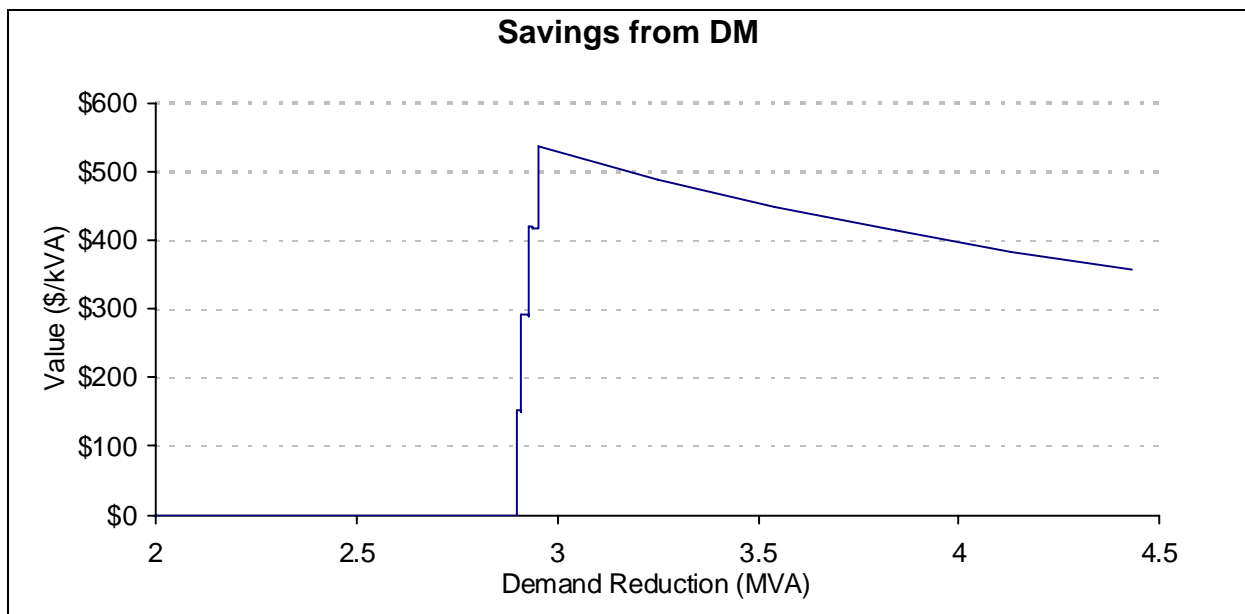
The estimated cost of the project is \$5.0m with a proposed commissioning date of May 2010. To meet this date an investment decision must be made as soon as possible.

Required Demand Management Characteristics

Based on the outage scenarios identified above, a total reduction in demand of 2.9MVA on feeders 15, 43 & 44 would be required to defer the need by one year. The demand reduction would need to occur in the winter evening period, and in specific locations to ensure that demand is within relevant limits for all emergency scenarios.

To achieve a one year deferral we would need to identify and implement 2.9MVA of demand reduction for winter 2010, which represents 21% of the total forecast demand of the relevant feeders, which is high. The savings from a one year deferral would be \$440,000 or \$152/kVA which is moderate.

The demand reduction increases by only 19kVA a year, so the original 2.9MVA load reduction, plus a further 60kVA load reduction would allow a four year deferral. The load reduction required represents a 22% of the total forecast demand of the relevant feeders, which is high. The savings from a four year deferral would be \$1.59m or \$538/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 the Castle Cove Zone substation load area, none of these customers were supplied by the relevant feeders.

Given the DMPP has looked in the area, and no relevant demand management opportunities were identified, there is a low likelihood that large opportunities on the relevant feeders could be found easily.

The demand requirement is moderate 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 timeframe before an investment decision must be made is short.

On balance, it is not considered reasonable to expect that the project could be cost effectively deferred by implementing 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.