

## DEMAND MANAGEMENT SCREENING TEST

### Castle Cove & Mosman Capacitors

#### Current Supply Arrangements

Both Castle Cove and Mosman 132/11kV Zone Substations consist of 4 x 37.5MVA transformers, and are supplied from Lindfield Subtransmission Substation (STS) via feeders 925/3 and 9E4/3.

Load flow studies based on the most recent demand forecast data indicate that the capacity of these 132kV feeders would be exceeded under certain emergency scenarios. Additionally the power factor for this 132kV network does not meet the National Electricity Code requirement of at least 0.95 lagging.

These substations supply a wide area of the lower North Shore including parts of Chatswood, Roseville, Lindfield, Willoughby, Castlecrag, Castle Cove, Northbridge, Mosman, Balmoral, Cremorne, Neutral Bay, and Cammeray.

#### Supply Capacity and Demand Forecast

Winter is the critical season for this part of the network, with peak demand in the evening. The load is a mixture of residential and commercial customers.

We forecast that demand would exceed capacity limits on 132kV feeders 925/3 and 9E4/3 under some emergency scenarios by winter 2010. The worst case scenario is summarised in the following tables.

Winter demand versus capacity for feeder 925/3

Year	2010	2011	2012
925/3 Rating (MVA)	176.1	176.1	176.1
Loading (MVA)	181.9	186.7	191.8
<b>DM requirement (MVA)</b>	<b>5.8</b>	<b>10.6</b>	<b>15.7</b>

It is proposed to fully replace these 132kV feeders in 2012 due to condition, at a cost of \$35.2m.

#### Supply Strategy Option

The preferred supply side option is the installation of 2 x 6MVAR capacitors at both Castle Cove and Mosman Zone Substations.

The estimated cost of this project is \$1.76m. Commissioning at Castle Cove and Mosman is proposed for October 2009 and May 2010 respectively. A decision on this investment must be made by January 2009.

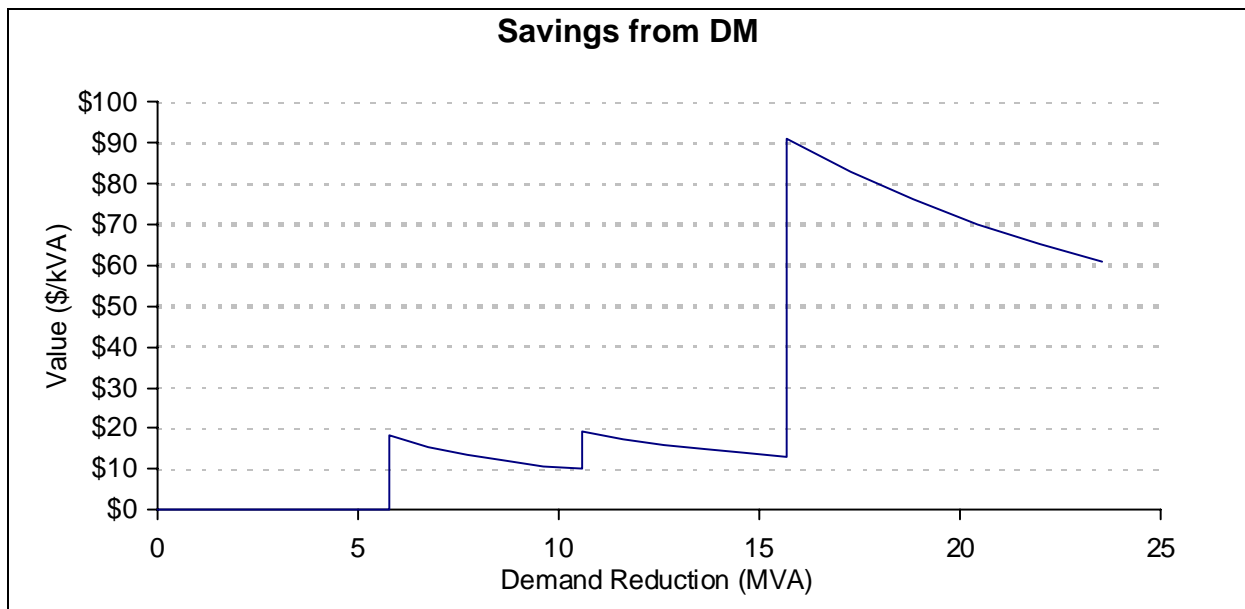
## Required Demand Management Characteristics

If demand on Castle Cove and Mosman Zone Substations could be reduced by 5.8MVA by winter 2010, then the project could be deferred by 1 year. This represents 3% of the total demand on these substations.

The value of this deferral is \$110,000, or \$18/kVA, which is low.

If demand could be reduced by 10.6MVA by winter 2011, then the capacitor project could be deferred by two years. The value of this deferral is \$200,000, or \$19/kVA, which is low.

If demand could be reduced by 15.7MVA by winter 2012, then the capacitor project could be deferred indefinitely. The value of this deferral is \$1.43m, or \$91/kVA, which is low.



The demand reduction is large, the deferral value is low, and the timeframe before an investment decision must be made is short. It is concluded that it is not reasonable to expect that the proposed investment could be deferred by implementing demand reduction 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.