DEMAND MANAGEMENT SCREENING TEST

Botany Zone Development 2008

Current Supply Arrangements

The system under consideration consists of Botany Zone Substation 11kV feeders 8, 10, 18 & 20.

These feeders are interconnected, and supply an area including parts of Botany, Banksmeadow, and Mascot.

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.

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

Scenario	Pickup Feeder	Limiting Section	Capacity of Limiting Section (MVA)	Summer Emergency Load forecast (MVA)		
				2009/10	2010/11	2011/12
Fault on feeder 8	2	Fdr 2 trunk	3.7	5.1	5.3	5.5
Fault on feeder 20	14	Fdr 14 trunk	3.5	4.6	4.8	5.0
Feeder 18 normal state	1	Fdr 1 trunk	2.3	2.6	2.6	2.7
Feeder 10 normal state	32	Fdr 32 trunk	4.9	5.0	5.1	5.3

This shows that in summer 2009/10 the forecast demand would be above the licence limits on a number of different feeders.

Supply Strategy Option

The proposed supply side project consists of a number of 11kV feeder works including a new trunk section from Panel 8, and creation of a pickup path from Panel 3, and augmentation and reconfiguration of feeders 18 & 20.

The cost of this project is estimated at $4m. The proposed commissioning date is December 2009. To meet this date a decision on this investment must be made as soon as possible.

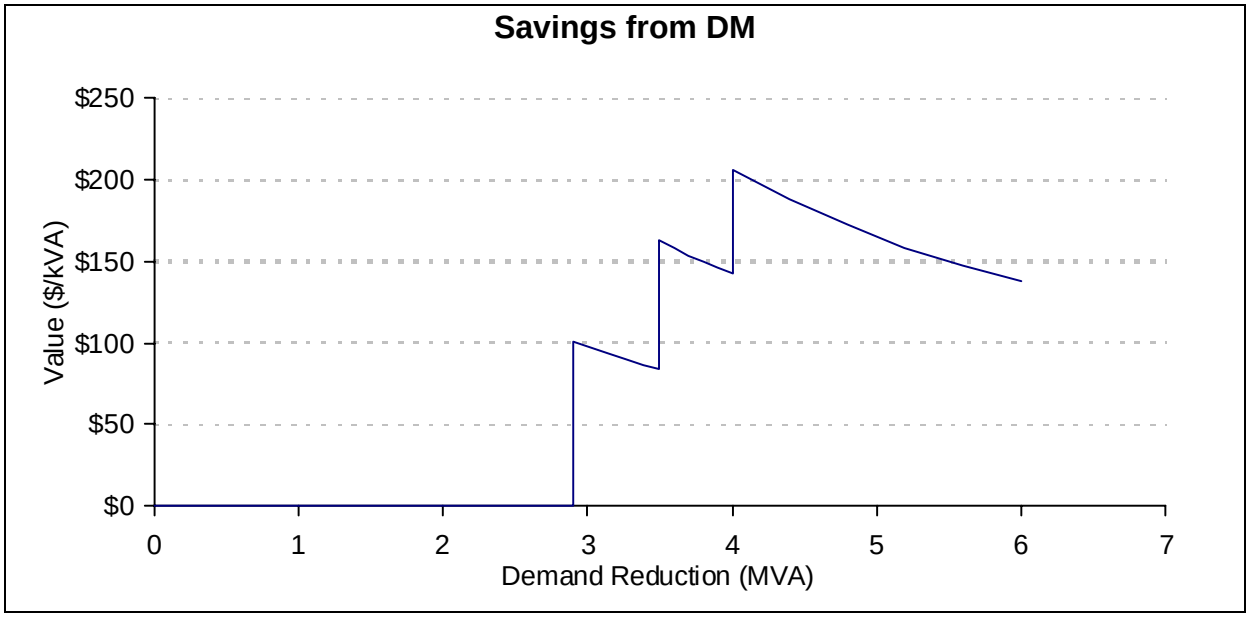
Required Demand Management Characteristics

If demand could be reduced by 2.9MVA by summer 2009/10, the proposed investment could be deferred by 1 year. The demand reductions would need to occur in the specific locations to ensure that capacity limits were not exceeded for the relevant emergency scenarios. This is 17% of the total demand on these feeders. The savings from this deferral is $290,000, or $101/kVA, which is moderate.

If demand could be reduced by 3.5MVA before summer 2010/11, then the proposed investment could be deferred by two years. The savings from this deferral is $570,000, or $162/kVA, which is also moderate.

If demand could be reduced by 4.0MVA before summer 2011/12, then the proposed investment could be deferred by three years. The savings from this deferral is $830,000, or $206/kVA, which is also moderate.

As demand is forecast to continue to grow, longer deferrals would require greater demand reductions.



The demand reduction requirement is large in absolute terms and as a proportion of total demand on these feeders. The deferral value is moderate, and the timeframe before an investment decision is short.

It is therefore 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.