

DEMAND MANAGEMENT SCREENING TEST

St. Peters Zone North Development

Current Supply Arrangements

St Peters Zone substation consists of two 37.5MVA and two 36MVA transformers which supply suburbs such as Newtown, Enmore and Stanmore. There are six 11kV feeders (9, 18, 19, 22, 26, and 29) at St. Peters Zone substation that require attention.

The licence conditions require that a feeder's load does not exceed 80% of its maximum rated load under normal system conditions. This feeder system is designed so that if any one feeder experiences an outage, the loads on that feeder can be picked up by the adjacent 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 of greater than 5000 should be less than 4 hours.

Supply Capacity and Demand Forecast

The load on the relevant feeders is a mix of commercial and residential customers. Peak demand on the feeders occurs during summer. The following table summarises each feeder's load for the worst case switching scenarios.

Scenario	Pickup Feeders	Limiting Section	Capacity of Limiting Section (MVA)	Summer Emergency Load forecast (MVA)				
				2010/11	2011/12	2012/13	2013/14	2014/15
Tee Section Outage on Feeder 09	Fdr 26	Fdr 26 Between S.5857 and S. 7372	4.3	5.7	5.9	6.1	6.4	6.6
	Fdr 29	Fdr 29 Between S.36178 and S.1953	3.5	3.5	3.6	3.8	3.9	4.1
	Marrickville Zone Fdr 19	Fdr 19 Between S.7541 and S.1524	4.6	4.6	4.8	5	5.1	5.3
Tee Section Outage on Feeder 19	Fdr 22 Fdr 06	Fdr 22 Between S.1446 and S.2044	3.8	5.3	5.5	5.7	5.9	6.2

Scenario	Pickup Feeders	Limiting Section	Capacity of Limiting Section (MVA)	Summer Emergency Load forecast (MVA)				
				2010/11	2011/12	2012/13	2013/14	2014/15
Trunk Section Outage on Feeder 26	Fdr 29 Fdr 14R Fdr 8	Fdr 29 Between S.320 and S.7174	5.0	6.3	6.5	6.8	7	7.3
Trunk Section Outage on Feeder 29	Fdr 14R	Fdr 29 Between S.320 and S.7174	6.0	6.9	7.2	7.4	7.7	8

The feeders 9, 19, and 29 are currently identified as exceeding 80% of their maximum rated load under normal system conditions. Furthermore if an outage occurs on feeder 9, 16, 19, 26, 29, or 32, the load cannot be picked up by the adjacent interconnected feeders without exceeding their maximum rated load.

The current rate of growth is 3.8% during summer and 1.7% during winter.

Supply Strategy Option

The preferred supply side option consists of four new feeders into the Newtown/Enmore area from St. Peters zone. Additionally, minor network augmentation is to be carried out on feeders 6, 9, 14R, 17, 18, 19, 27, 29 and 31 as well as replacing the Ring Main Isolator (RMI) at S. 1941 Pemell St.

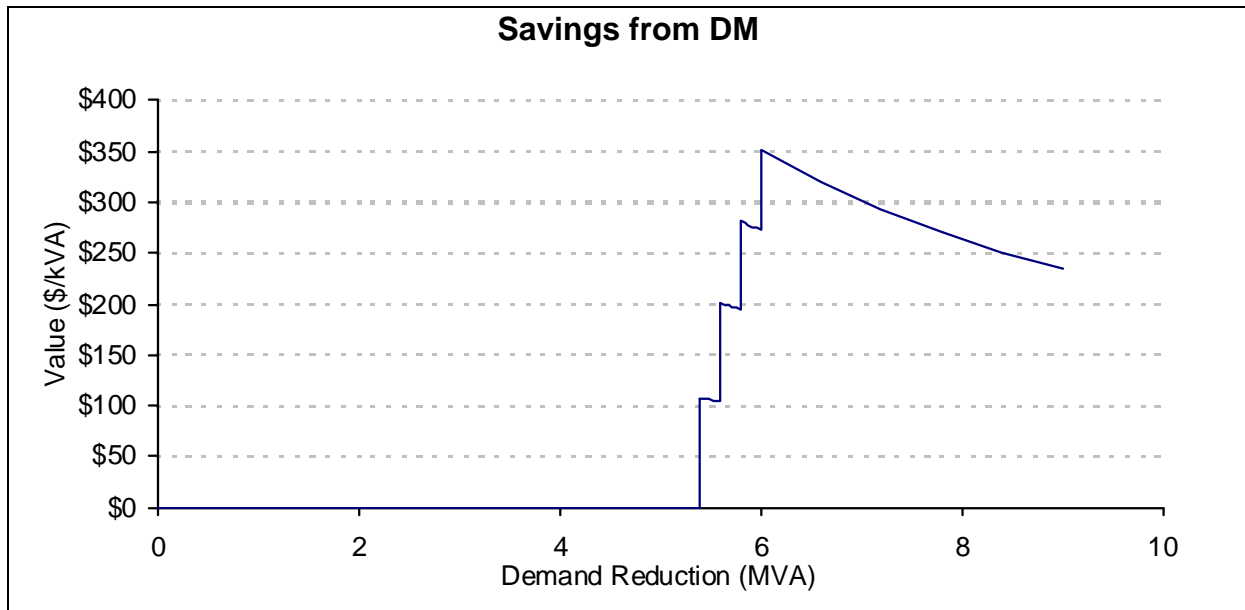
The planning estimate for this project is \$7.4M. The proposed commission date is Dec 2011. A decision on this investment must be made by Dec 2010.

Required Demand Management Characteristics

Assuming a best case for demand reduction needed, a 5.4 MVA load reduction is required by Summer 2011/2012 to enable a 1 year deferral. This represents 15% of the load on the relevant feeders. The potential savings for a 1 year deferral is \$0.58M or \$107/kVA.

For further deferral, each subsequent year would require an additional 200kVA in demand reduction. A 6MVA demand reduction would allow a 4 year deferral, which would give a potential saving of \$2.11M or \$351/kVA.

The demand reductions would need to occur in specific locations to ensure that demand is within capacity at the limiting sections.



The demand reduction requirement is large in absolute terms and as a proportion of total demand on the feeders. The potential savings in terms of both \$/kVA and total savings are low to moderate.

Considering the large demand reduction required and the moderate savings, on balance it is not 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.