

## DEMAND MANAGEMENT SCREENING TEST

### Breakfast Point Feeder Development (Concord Zone)

#### Current Supply Arrangements

Breakfast Point, Cabarita, Mortlake and parts of Concord West are supplied by Concord zone substation via the 11kV feeders 17, 18, 22, and 25. These 11kV feeders are the focus of this document.

The feeders are interconnected in such a way that if any one feeder experiences an outage, the load on that feeder can be picked up by the adjacent interconnected feeders.

The licence conditions require that a feeder's load does not exceed 80% of its maximum rated load under normal system conditions. When an outage on a feeder occurs, it must be picked up by the adjacent feeders with a maximum of 3-5 switching operations and without exceeding the maximum rated loads of the adjacent feeders. These conditions are 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

Peak load on the feeders occurs during summer and is comprised of mainly residential loads. However feeders 17 and 22 also have an emerging winter night constraint. Demand is forecast to grow at 2.9% during summer and 1.2% during winter.

Feeders 17 and 22 exceed 80% of their maximum rated load during normal system conditions. Feeders 18 and 25 as well as 17 and 22 exceed their maximum rated load during outage conditions. The relevant summer feeder ratings and load details are described in the following table.

Scenario	Pickup Feeder	Licence Condition	Capacity Limit (MVA)	Forecasted Summer Load (MVA)					
				2012/2013	2013/2014	2014/2015	2015/2016	2016/2017	2017/2018
Normal Condition on:									
Feeder 17	n/a	80%	3.8	4.8	4.9	4.9	4.9	5.0	5.0
Feeder 22	n/a	80%	4.8	5.7	5.7	5.7	5.7	5.8	5.8
Outage on:									
Feeder 17	22	100%	6.0	7.7	7.7	7.8	7.8	7.9	7.9
Feeder 18	25	100%	6.1	7.1	7.2	7.2	7.2	7.3	7.3
Feeder 22	17	100%	4.8	7.6	7.6	7.7	7.8	7.9	8.0
Feeder 25	18	100%	5.8	7.1	7.1	7.1	7.2	7.2	7.2

The best case for the demand reduction required on the feeders in question is described in the table below:

Summer	MVA of Reduction Required on				Total
	Feeder 17	Feeder 22	Feeders 17 or 22	Feeders 18 or 25	
2012/2013	1.0	0.9	0.9	1.3	4.1
2013/2014	1.1	0.9	0.9	1.3	4.2
2014/2015	1.1	0.9	1.0	1.3	4.3
2015/2016	1.1	0.9	1.0	1.4	4.4
2016/2017	1.2	1.0	1.0	1.4	4.5
2017/2018	1.2	1.0	1.1	1.4	4.7

### Supply Strategy Option

The supply strategy option for the development of Breakfast Point is to upgrade the existing feeders and to provide an additional feeder to cater for current and future demand. This will be done by laying one feeder from Concord Zn31 to Breakfast Point and upgrading feeder portions of feeders 17, 18, 22, and 25.

Included in this option is the replacement of some aged assets; most notably a number of copper feeder sections.

The planning estimate for this project is \$5.9M. The expected project completion date is 1 Apr 2012. A decision on this investment must be made by 1 Apr 2011.

### Required Demand Management Characteristics

A total of a 4.05 MVA is required by summer 2012/2013 for the project to be able to be deferred by 1 year. Further deferral requires 110kVA of demand reduction in each subsequent year. 4.05 MVA represents 23% of the total load on the feeders under consideration.

The potential savings for a 1 year deferral is \$0.50M which equates to \$122/kVA. This is a low overall saving and represents low to moderate value in terms of \$/kVA.

A 2 year deferral allows potential savings of \$0.96M which equates to \$230/kVA. This represents moderate savings.

A 6 year deferral requires 4.8 MVA of demand reduction to occur by summer 2017/2018. The potential savings for a 6 year deferral is \$2.53M which equates to \$527/kVA. This is high in terms of overall savings and \$/kVA.

The demand reduction required is large and represents a significant proportion of the existing load on the feeders. This coupled with the fact that it is traditionally difficult to achieve large demand reductions in residential areas and the short time before a decision is required makes the moderate potential savings not enough to justify

further investigation. Based on the information available, it is not reasonable to expect that effective DM options might be uncovered in an investigation.

**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.