DEMAND MANAGEMENT SCREENING TEST

Miranda and Kirrawee zone substation 11kV Development

Current Supply Arrangements

The system under consideration consists of Kirrawee zone substation 11kV feeder 17 and Miranda zone substation 11kV feeders 3, 8, 14 and 16.

This system is designed so that if any of the feeders experiences an outage the loads on that feeder can be picked up by the other interconnected feeders. This should be achieved with a maximum of 3-5 switching operations, which aligns with the licence requirement that 11kV customer interruptions in urban areas should be less than 4 hours.

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.

They supply a region including the Gymea, Grays Point, Yowie Bay and Miranda areas.

Supply Capacity and Demand Forecast

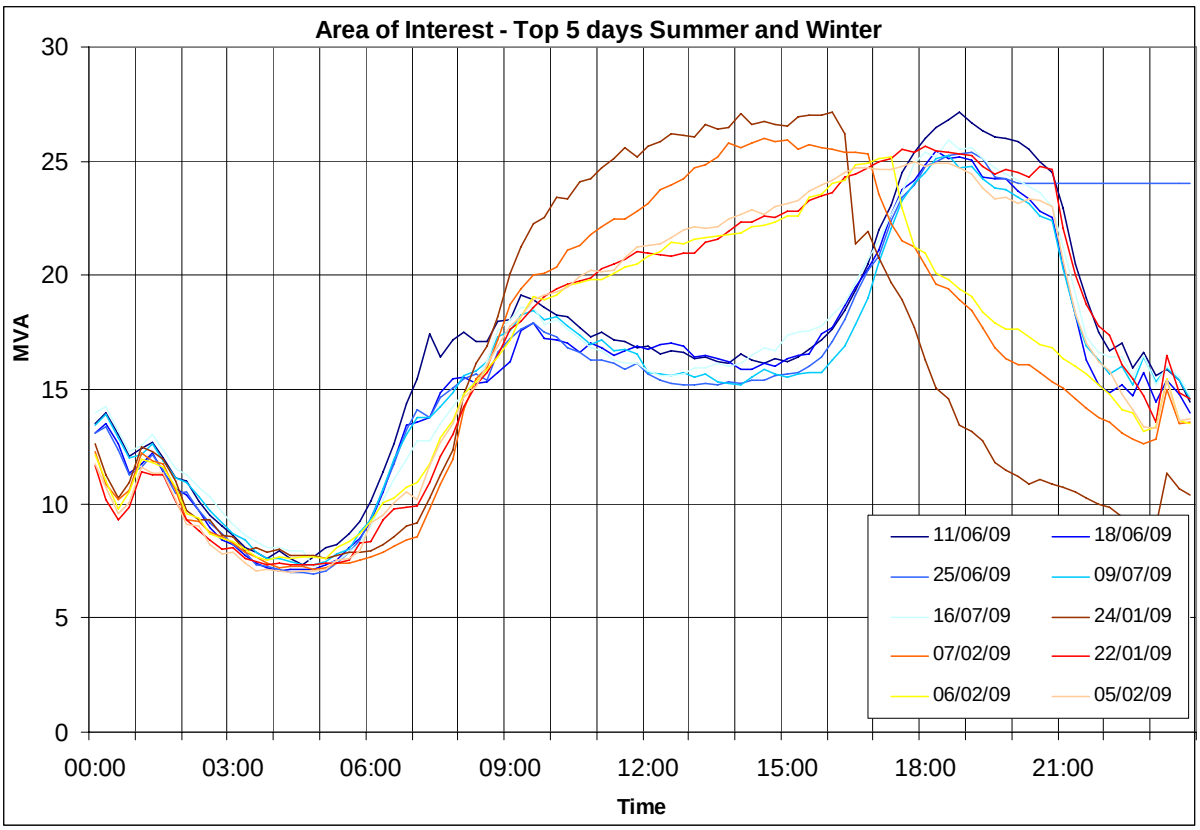
The load at Kirrawee zone including feeder 17 is forecast to grow at 1.5% in summer and 1.1% in winter. The load at Miranda zone, including feeders 3, 8, 14 and 16 is forecast to grow at 0.6% in summer and 1% in winter.

The load in this area is predominately residential, with peak demand between 6pm and 9pm, with forecast winter demand higher than forecast summer demand.

The table below summarises the rating and forecast critical feeder loads under the worst case outage scenarios as they would be in summer 2010/11 and winter 2011.

Season	Failure Scenario	Pick up Feeder	Rating of Limiting Section (MVA)	Forecast Load at critical section (MVA)
Summer ‘10/11	Feeder 3	Feeder 14 Miranda	6.9	7.7
Winter ‘11	Feeder 3	Feeder 14 Miranda	7.5	7.9
Winter ‘11	System Normal	Feeder 8 Miranda	7	8.1
Winter ‘11	System Normal	Feeder 16 Miranda	7.1	7.3
Winter ‘11	System Normal	Feeder 17 Kirrawee	7.6	8.1

The graph below show the load profile for the 5 days with the highest demand in winter 2009, and summer 2008/09.



Supply Strategy Option

The preferred supply side option is to install a new 11kV feeder at Kirawee zone substation so that load can be transferred from Miranda Zone substation feeder 16 to Kirrawee zone substation feeder 17. Sections of cable will be replaced to increase the capacity of Miranda zone substation 14.

There is also work rearranging the existing network assets to redistribute load between feeders 3, 8, 14 and 16 in Miranda zone substation.

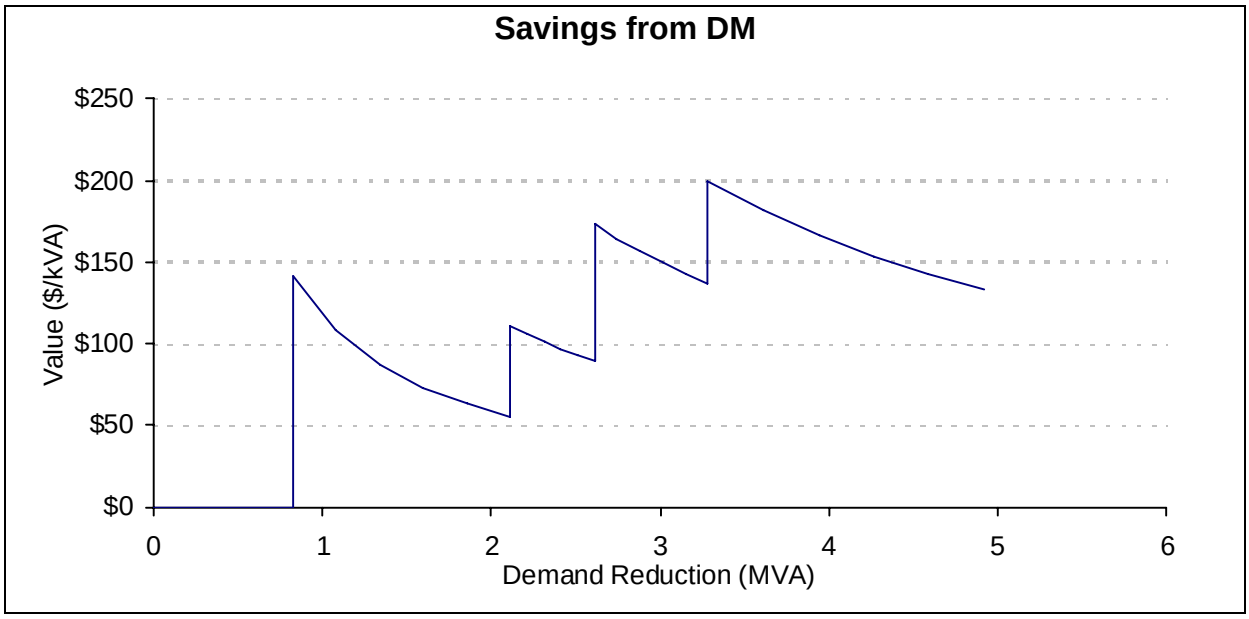
The cost of this project is estimated at $3.4m, commissioning is proposed for October 2010, and a decision is required as soon as possible.

Required Demand Management Characteristics

If 800kVA of demand reduction could be achieved for summer 2010/11, the proposed investment could be deferred until winter 2011. 800kVA represents 12% of the load forecast on the relevant feeder, Miranda zone feeder 14, which is moderate. The saving from a 6 month deferral would be $120,000, or $142/kVA, which is low.

If a 2.1MA demand reduction could be achieved for winter 2011, including a 950kVA reduction in summer 2011/12, the proposed investment could be deferred until winter 2012. 2.1MVA is approximately 9% of the forecast load on the relevant feeders, Miranda zone feeders 8 and 16 and Kirrawee zone feeders 17, which is moderate. The savings from a one year deferral would be $230,000 or $110/kVA, which is low.

If a 2.6MVA demand reduction could be achieved for winter 2012, including a 1.1MVA demand reduction in summer 2012/13, the proposed investment could be deferred until winter 2013. A 2.6MVA is approximately 11% of the forecast load on the relevant feeders, Miranda zone feeders 8 and 16 and Kirrawee zone feeders 17, which is moderate. The savings from a two year deferral would be $450,000 or $173/kVA which is moderate.



The required demand reductions for each of the deferral scenarios are moderate in absolute and in relative terms, and the possible savings are moderate in absolute terms, and low in relative terms.

As shown by the worst case failure scenarios, the demand reductions must occur in particular parts of the network. This decreases the likelihood of finding cost effective demand reductions.

While the load is predominately residential which decreases the likelihood, and increases the cost of demand reductions, there are some significant commercial loads within the relevant feeders.

The required demand reduction includes significant winter evening loads, and significant summer afternoon loads. This increases the difficulty and cost of finding demand reductions, as either the opportunities need to be found which reduce peak loads in both time periods, or, different opportunities need to be found which can cater for each of the time periods.

On balance it is not considered reasonable to expect to cost effectively postpone this investment.

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.