

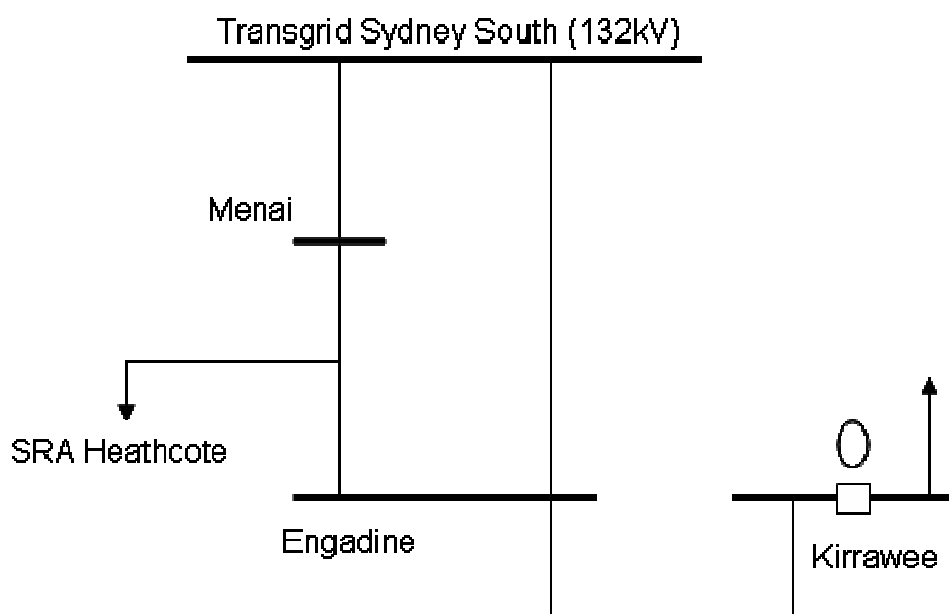
DEMAND MANAGEMENT SCREENING TEST

Engadine 132/11kV Zone Substation

Current Supply Arrangements

The existing Engadine 33/11kV Zone Substation consists of two 19MVA transformers and one 10MVA transformer. It is supplied from Port Hacking Subtransmission Substation (STS) via an interconnected 33kV feeder network. Due to aged asset issues, Engadine Zone Substation will need to be replaced no later than 2014.

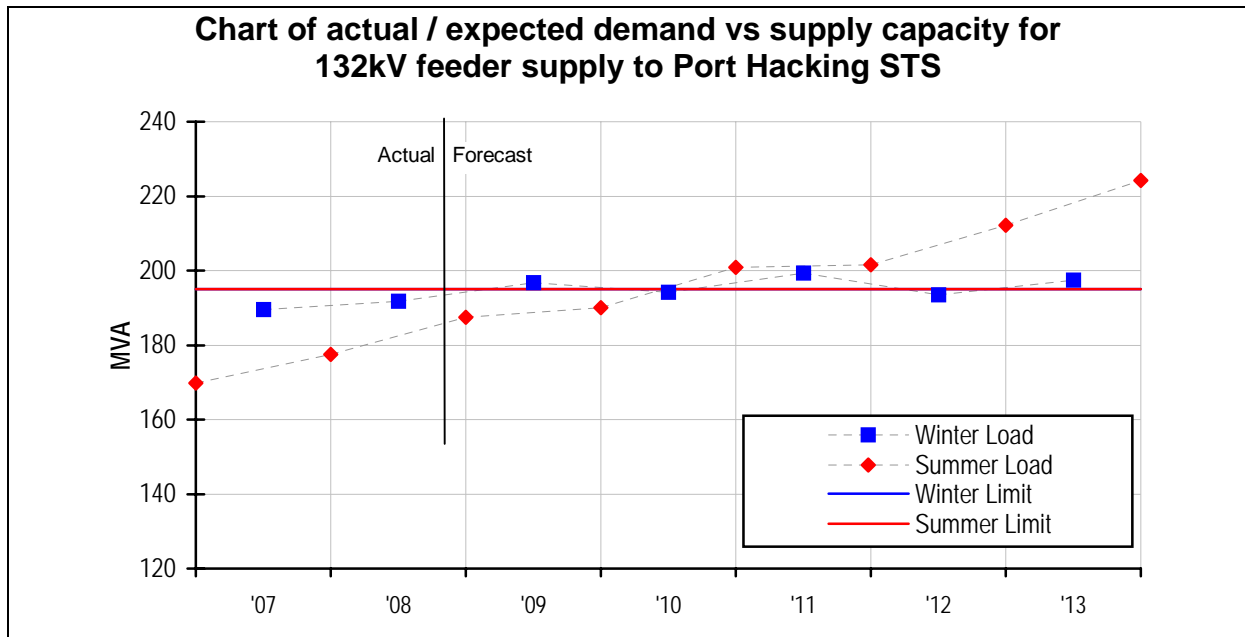
Port Hacking STS is supplied at 132kV via two feeders from TransGrid's Sydney South substation. These feeders also supply Menai zone substation, part of Kirrawee zone substation and SRA's Heathcote supply point, as shown schematically below.



Supply Capacity and Demand Forecast

Summer is the critical season for the Port Hacking STS system. The customers in this area include a mix of residential, commercial and industrial loads.

The relevant capacity limit of the 132kV feeder supply to Port Hacking STS is 195MVA in both summer and winter. We forecast that demand will exceed capacity by 5.8MVA in summer 2010/11, rising to 17.2MVA above capacity in summer 2012/13. We also forecast that demand will exceed capacity by 4.3MVA in winter 2011, falling to 2.5MVA above capacity in winter 2013.



There is sufficient capacity to meet demand for the foreseeable future at Port Hacking STS itself, the 33kV feeder network supplied from the STS, and also Engadine Zone Substation.

Supply Strategy Option

The proposed supply side solution is to construct a new 132/11kV Zone Substation at Engadine at a cost of \$50.1m. This will remove the substation's load from Port Hacking STS and reduce the load on the 132kV feeders.

Commissioning for the project is proposed for October 2012, with an investment decision date of May 2009.

Required Demand Management Characteristics

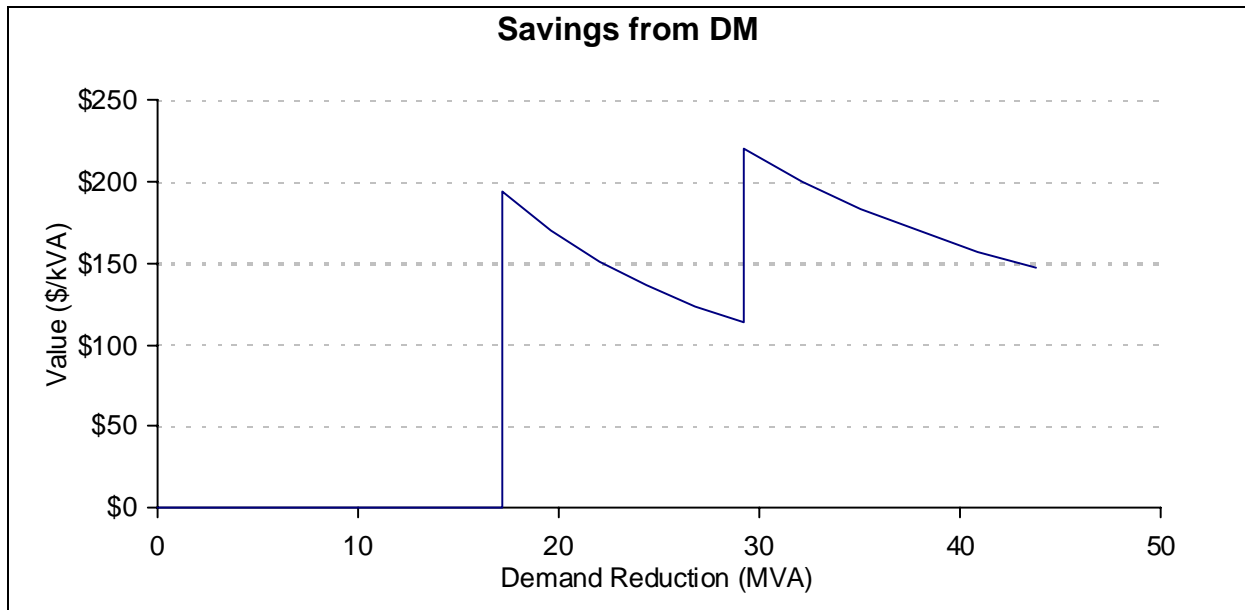
If demand on Port Hacking STS (and/or Menai Zone & SRA Heathcote) could be reduced by 17.2MVA before summer 2012/13, with at least 2.5MVA of the reduction also persisting in winter 2013, then the proposed investment could be deferred by one year. This reduction represents 8% of the total load on this system.

The cost saving from this deferral would be \$3.33m or \$193/kVA, which is moderate.

If demand could be reduce by 29.2MVA before summer 2013/14, then the investment could be deferred by two years. The cost saving from this deferral would be \$6.44m or \$220/kVA, which is also moderate.

Reductions in demand at this location would also be beneficial at the transmission level and contribute to the deferral of the proposed Chullora Bulk Supply Point. This would increase the cost savings.

Due to aged asset issues, it is not possible to defer the Engadine investment by more than 2 years.



Lucas Heights Landfill Gas Generators 1 & 2 are connected to the 33kV system supplied from Port Hacking STS. The combined capacity of these generators is 17.9MW. There may be potential to enter into a network support agreement with the owner/operator of these plants.

Whilst the DM requirement is large and the cost savings are moderate, there appears to be significant demand reduction opportunities in the area supplied by Port Hacking STS, and additional cost savings may be attributable at transmission level. On balance it is therefore considered reasonable to expect that demand management could cost effectively defer the proposed supply side project.

Recommendation

Based on this analysis it is considered reasonable to expect that it may be cost-effective to postpone the proposed supply-side solution by implementing demand management strategies. A demand management investigation will be undertaken involving a full investigation including public consultation and field investigation. A crucial part of the investigation will be to open discussions with the owner/operator of the Lucas Heights Landfill Gas Generators regarding a possible network support agreement.