

## DEMAND MANAGEMENT SCREENING TEST

### Royal North Shore Hospital Redevelopment

#### Current Supply Arrangements

The area around Royal North Shore Hospital is supplied from Gore Hill zone substation, which consists of three 25MVA and one 33MVA 33/11kV transformers. It is supplied from Willoughby subtransmission substation (STS).

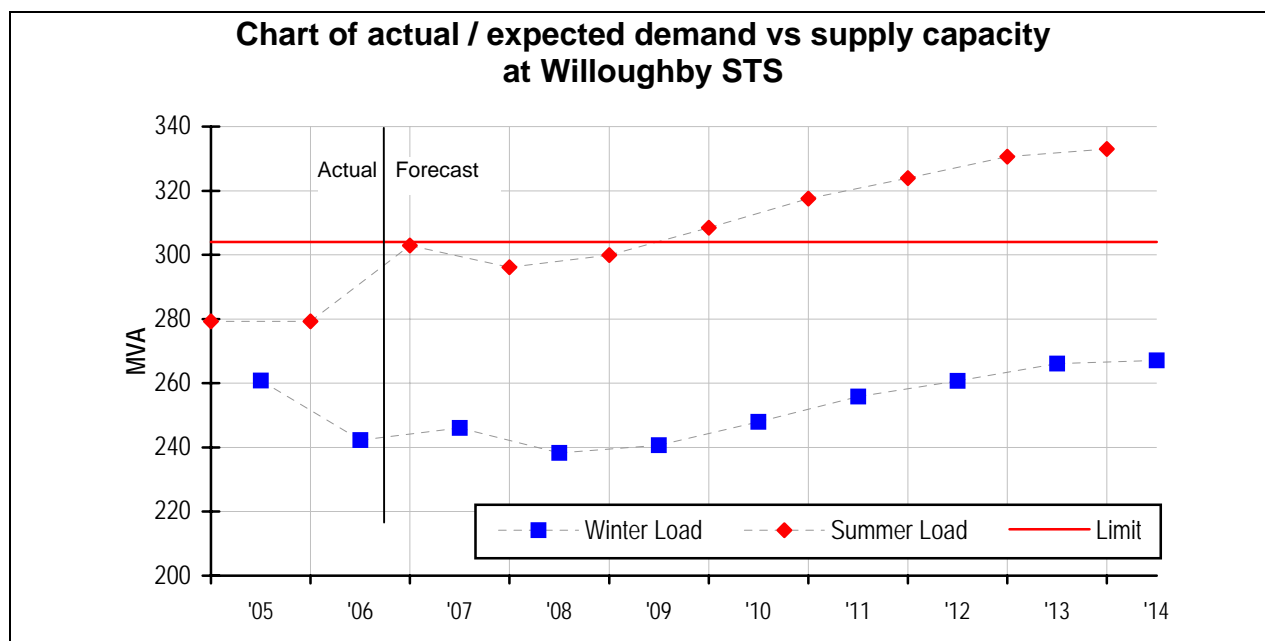
The relevant capacity limit at Gore Hill zone is 102.3MVA in both summer and winter and is determined by transformer capacity. The relevant capacity limit at Willoughby STS is 304MVA in both summer and winter and is also determined by transformer capacity.

Willoughby STS supplies a large part of the North Shore area including North Sydney, Crows Nest, Gore Hill and Chatswood zone substations.

#### Supply Capacity and Demand Forecast

The area supplied by Willoughby STS consists of a mix of residential and commercial customers. Summer is the most critical season although winter demand is also forecast to approach capacity limits. Peak demand periods tend to be around 4-6pm when the commercial and residential sectors overlap.

The Royal North Shore Hospital (RNSH), which is supplied from Gore Hill zone substation, is proposing a new development with up to 20MVA of additional load, which will be completed in stages starting from 2008. With the addition of this new load in addition to normal load growth we forecast that demand would exceed capacity at Willoughby STS by summer 2009/10.



Demand at Willoughby STS was 279.3MVA in summer 2005/06, and 260.8MVA in winter 2005. With the new load development at RNSH, we forecast that demand would exceed capacity by 4.5MVA in summer 2009/10, rising to 13.6MVA above capacity in summer 2010/11.

Even with the addition of the new load development at RNSH, we forecast that Gore Hill Zone substation will have sufficient capacity until at least 2020.

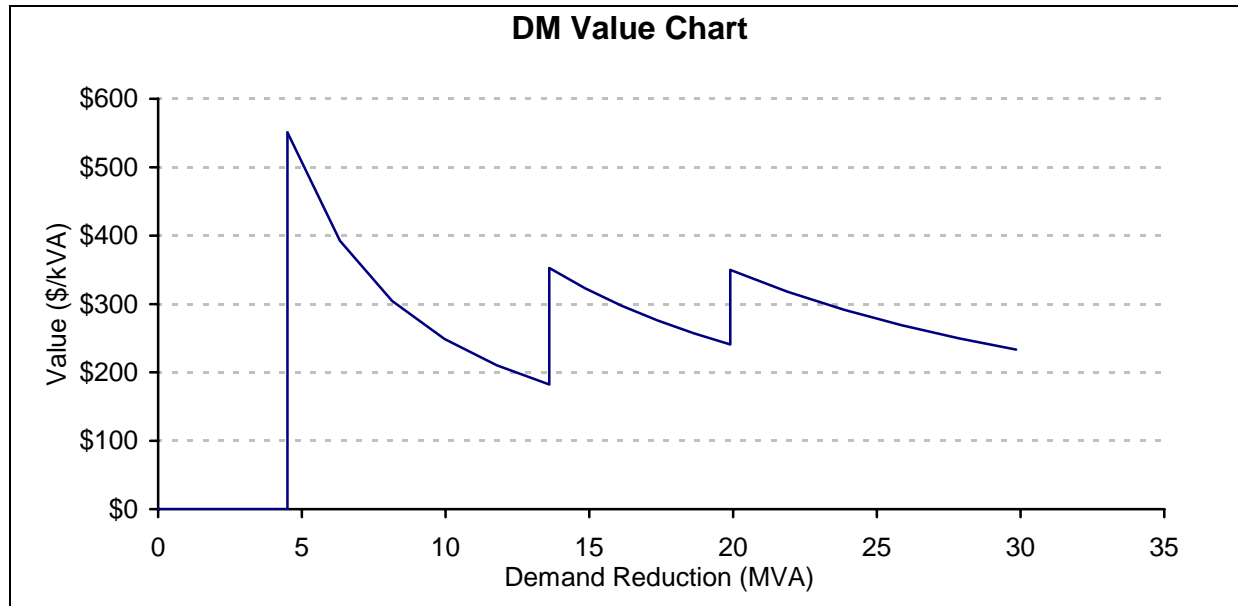
### Supply Strategy Option

It is proposed to develop a new 132/11kV RNSH zone substation at an estimated cost of \$30m. Commissioning is proposed before summer 2009/10, with an investment decision to be made by December 2007.

### Required Demand Management Characteristics

If 4.5MVA of demand reduction could be identified and implemented across Willoughby STS supply area before summer 2009/10, then the proposed investment could be deferred by one year. This represents 1.5% of the demand on this substation. The demand reduction would need to target both the commercial and residential sectors in the summer afternoon and early evening period. The cost saving due to this deferral would be \$2.48m, or \$550/kVA.

A reduction of 13.6MVA would be required to defer the investment by two years. The savings from this deferral would be \$4.8m, or \$350/kVA.



Given the size of the demand reduction requirement, the relatively high value of deferral, and the timeframe before an investment decision must be made, it is considered reasonable to expect that demand management could cost effectively defer this investment.

## **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.